The American Journal of Pharmaceutical .... Education ....

THE OFFICIAL PUBLICATION OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

"It is my impression that pharmacy is doing less than it should to reproduce itself through the training of professional pharmaceutical scientists. There is a tremendous need for research workers to develop the scientific aspects of pharmacy Pharmaceutical manufacturing, practical pharmacy and pharmacognosy, and other special disciplines are taught only in schools of pharmacy."—M. L. Tainter, M.D., Director, Sterling Winthrop Research Institute, Rensselaer New York.

Volume XVI January, 1952 Number 1

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Pharmacy—A Noble Profession*

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Pharmacy appears to this non-pharmacy-trained onlooker to be threatened in its status as a learned profession. There seems to be a strong growing tendency for a part of the field of pharmacy to be pre-empted by chain stores, supermarkets, and other new sales outlets, in which the rôle of the professional pharmacist is minimized by the tremendous drive of merchandising incentive. At the same time, the one-time ethical pharmacy, which formerly stressed prescription compounding and related professional activities, now seems, to the superficial observer at least, to be drifting more and more to being preoccupied with merchandising non-medical products. If this tendency continues, there is a danger that pharmacy will lose much of its dignity as a learned profession and become to a regrettable degree only a specialized branch of commercial life. This is a trend which all those who have the long term interests of pharmacy at heart will decry. It might be worth while to review briefly the status of professional pharmacy and to explore the fundamental attributes which must be preserved if this noble profession is not to go into a phase of decline.

Even the casual reader of medical history quickly realizes that pharmacy originated simultaneously with the art of medicine, and much before medicine as a science developed to substantial proportions. The earliest surviving medical writings may properly be considered to be as much pharmaceutical as they were clinical in the problems they discussed. The most ancient medical documents are probably the clay tablets discovered in Mesopotamia and which date back to about 2500 B.C. These dealt with the preparation and distribution of drugs and in them the physician-pharmacist was a man of priestly veneration. The Ebers Papy-

*Address to the graduating class and alumni of the School of Pharmacy, University of Pittsburgh, June 11, 1951.

rus of about 1550 B.C. cataloged almost 500 drugs, with methods of compounding set forth into what may be considered a primitive yet clearly recognizable dispensatory. The dispensatory of Scribonius Largus, written about 43 A.D., classified drugs in a systematic way at a time when the most elementary facts of anatomy and disease were still surrounded in mysticism and error. Careful reading of these and other contemporary texts indicates that, relatively speaking, the science of pharmacy was more advanced at that time than were diagnosis, surgery, pediatrics, and the other special phases of clinical medicine. Pharmacy was legally recognized as a learned profession as early as 1240 A.D., when Frederick II of Hohenstaufen, the Emperor of the Holy Roman Empire, issued an edict which recognized pharmacy's special professional position.

In North America the professional status of pharmacy was created by the very earliest explorers. Louis Hebert, a French trained pharmacist, came to Port Royal in the St. Lawrence with the first French explorers and colonizers and established there a traffic with the mother country in drugs and medicinals. In New England, Giles Ferman arrived in Boston in 1632 to establish himself as a professional pharmacist. Even in 1731, at a time when Boston was still a very small hamlet, at least according to present day concepts, there were 14 apothecary shops. The previous year Benjamin Franklin had raised the money to establish the Pennsylvania Hospital in Philadelphia, and in organizing its operations he designated the hospital pharmacist as the independent head of a discrete unit of the institution.

For over 100 years the special professional status of the pharmacist has been recognized by law in this country, through legislators having set up extensive special educational qualifications for the practice of pharmacy. It should not be overlooked by the members of this profession that the pharmacist is the only person in the business community engaged in merchandising activities whose special technical qualifications are so important that he is required to pass rigorous State examinations in order to carry on his business. These laws, directly, and also by inference, put the pharmacist in the same category as the lawyer, the dentist, the veterinarian, and the physician, and not in the category of the

merchant in charge of the nearby store. These few illustrations, which could be multiplied indefinitely, make it abundantly clear that pharmacy is a profession whose roots are deep in antiquity and which is venerable with the respect earned through hundreds of generations of professional activities.

However, in view of the commercial trend referred to above, perhaps we should look at the present day claim of a professional status for pharmacy more analytically. Perhaps we are now calling pharmacy a profession too lightly. There might be some who would insist that under modern conditions pharmacy is no longer a profession, but only a more highly specialized commercial occupation. This hypothetical viewpoint, I believe, deserves scrutiny on an occasion like this, since only by clearly understanding the attributes of a profession may we appreciate the difference between a professional pharmacist and, say, the graduate of some school of business.

In my opinion, a profession is set apart from other vocations by four major characteristics. In the *first place,* there is required of the professional man in the healing arts an especially difficult training in various sciences, which equips him to handle problems involving knowledge and judgment of technical facts beyond the capabilities of the layman. Correlative with this is the implication that these technical branches of learning are taught at a level of intellectual mastery beyond that of non-professional college training, so that only students superior in intellectual ability and qualifications for leadership are chosen for and are successful in these studies. Therefore, this specialized training produces a select group of graduates of such abilities as to help set them apart from others in their community.

A *second attribute* of professional life is that the professions by tradition are self-perpetuating; that is, many of their most highly qualified members altruistically devote much of their time to training neophytes in the profession, so that the accumulated experience of the past is carried on and added to with each successive generation. This training of young professional people by those who have achieved leadership in their fields is almost uniquely characteristic of the healing arts and their ancillary sciences. The leading doctors, dentists, veterinarians and phar-

macists, who live near their professional schools, devote much time, most frequently on a volunteer basis, to training the on-coming generation in the technics and art which they have acquired through years of experience. When such training is carried out by other groups in the population, such as in the mechanical trades, business schools, and others, the training is conducted mainly as a business quite different from the pure altruism of the profession.

Therefore, pharmacists, in their status as professional men, must make their contribution to the training of the on-coming generations in just the same way as they have been given generously of the time and wisdom of many professors during their professional training. Not all, of course, are given the privilege of serving their college in this way, but all will realize that no higher compliment can be paid a professional man than to be given the opportunity of sharing his knowledge and wisdom with those who are eager to follow, as best they may, in the footsteps of the leaders who have gone before them.

The *third attribute* of a professional man is that he is motivated to an entirely unique degree by altruism rather than by commercial considerations. The practitioners of the healing arts are obligated by traditional oaths to render their services to the afflicted freely, without primary concern for monetary reward or recompense. Anyone who does differently prostitutes his profession, and is unworthy of moving among the leaders in his field. He sullies his profession because his primary concern is not that of alleviation of suffering, but the pursuit of economic advantage. This attribute may be a source of special danger to the professional status of pharmacy, because, admittedly, the pharmacist must play a dual role in the community, commercial plus professional. The principle that resolves this conflict is motivation. The pharmacist will be only a merchant if his primary aim is to accumulate wealth. However, if he focuses his attention on his contributions to the community welfare in his professional capacity, the commercial aspects become appropriately subordinated, and the professional attributes of pharmacy are reaffirmed.

A *fourth* characteristic of the healing professions is their preoccupation with research. A professional man in the healing

arts is always a scientist. If he should ever cease to be actively interested in science he would lose one of the indispensable attributes of a profession, intellectual curiosity. He would become a sorry representative of that long line of distinguished pharmacists who have contributed profoundly to the majestic growth of medicine through thousands of years. A professional man, who is worthy of his salt, feels that he owes an obligation to the science by which he earns his daily bread, to enrich it by integrating various facets of his daily experience into new concepts which lead to deeper understanding of his field, and to actively undertake experimentation to explore the boundaries of knowledge. This research is not motivated by considerations of whether or not it might be remunerative. It is carried on for the love of truth; because the man responds to the challenge of unsolved problems, and because he realizes the need of developing better ways of doing things than were available to his professional predecessors. The results of such research are communicated freely through scientific journals and public lectures to his colleagues in his profession, that they too may benefit from these studies, just as he has benefited from unnumbered generations of investigators before him.

Therefore, if pharmacists are to be worthy of their profession, they must concern themselves with those research problems which may be available to them; they must share their deepening knowledge of the technical aspects of pharmacy. If opportunity does not afford itself for a pharmacist to participate in such research personally, he should be alert to stimulate others to undertake investigations and to present their findings before appropriate audiences. The pharmacist must also be receptive to the results of other people's researches, and must sustain them in their efforts to advance his profession by attending the meetings at which they present their findings, and, wherever possible, by participating in the discussion of these studies as they apply to his particular problems.

It is my impression that pharmacy is doing less than it should to reproduce itself through the training of professional pharmaceutical scientists. There is a tremendous need for research workers to develop the scientific aspects of pharmacy.

Pharmaceutical manufacturing, practical pharmacy, pharmacognosy, and other special disciplines are taught only in schools of pharmacy. These scientific fields are unique to this profession. There is no place to obtain effective research workers in these subjects if the pharmacy schools do not train them, and if enough graduates in pharmacy do not take up this type of research as their chief vocation in life.

During the past few years I have been engaged in obtaining various types of scientific personnel for research in a large industrial pharmaceutical research institute. The most difficult person to find, of the entire array of scientific skills needed by us, is the research pharmacist. The demands for a trained investigator in this profession are, in my opinion, considerably greater than that for any other kind of research personnel. Lacking enough pharmacy-trained scientists, the pharmacy laboratories have to be filled with chemists, bacteriologists, or other biologically trained individuals, who get their pharmaceutical orientation vicariously and imperfectly. This is a matter which the on-coming generations of pharmacists should consider, because their profession cannot survive as a profession unless it is constantly reinforced and fertilized by the most brilliant men of the on-coming generations.

How then, in the light of the concepts just presented, is the pharmacist to reaffirm and reinforce his right to be called a professional man, against the sweep of the tide tending to commercialize his profession.

I think it is obvious that he must continuously so live that the four attributes of a professional man, set forth above, are vividly exemplified in his way of life. He must deeply believe in his professional status, and his life must be an open testimony to that belief.

One of the ways in which this class is going to demonstrate its feeling of responsibility towards the profession of pharmacy is by supporting its college in the full measure afforded by its opportunities. Some may be called upon to participate in its teaching program, others may make their contribution through helping finance needy students, some may donate or raise funds for the college in its manifold activities; still others may play an im-

portant role in seeing that those young people in their communities, who are likely to bring honor to professional pharmacy, are directed to the pharmacy colleges, so that the coming generation may exemplify the same high standards as the present one

Wherever your contribution is to be made, and whatever it may be, you must recognize that your measure, as a representative of a noble profession, is largely taken in terms of how well you render these kinds of return to your chosen profession. You are able to contribute importantly to the progress of your profession today. You can also make this college proud of the role you will be playing in the world of tomorrow. Great opportunity carries with it a corresponding measure of great responsibility. The faculty has spent four years imparting to you their accumulated wisdom; they have taught well the past and the present. Now, it is for you to create the future!

A Survey of the Status of History of Pharmacy in American Pharmaceutical Education

GLENN SONNEDECKER* AND GEORGE URDANG†
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No one has sketched into the picture of American pharmaceutical education, in clean lines and accurate perspective, a delineation of the history of pharmacy as actually taught in present curricula. This is not surprising, since socio-historical studies of the professions and civilization at large, as an accepted basis of planning for future development, are of rather recent vintage.

Now, however, such study has come into the foreground of discussion everywhere, and pharmacy by no means lags behind.

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Presented before the Section on Education and Legislation, American Pharmaceutical Association, Buffalo, N. Y., 1951.

On the contrary there have grown up on this ground current ideas of better preparing tomorrow's pharmacist for productive citizenship in both his community and his profession. And through this concept of education re-echoes what Edward C. Elliott declared fundamental for American pharmacy of tomorrow—as a profession: "The profession must contain," he suggested, "a far greater proportion of members who are ever sharply jealous of the high reputation of the profession and who, by energetic cooperation, are determined ever to protect that reputation."[1]

How can such goals be reached? There is no evidence that more technical education can be the whole answer. There can be no single answer. Even some teachers who tend to equate pharmaceutical education with scientific (technical) education seem to believe at least one guidepost points toward more "general education" or "cultural training."

If one accepts that idea, it becomes difficult to reject the functional role of history of pharmacy as a bridge connecting two streams of thought and action, flowing from the technico-scientific ground on the one side and the socio-cultural ground on the other. The advantages of testing that bridge, through an adequate course in the socio-historical aspects of the profession adequately taught, have been well expressed by Rufus A. Lyman, Arthur H. Uhl and others.[2]

Our purpose here is to learn the attitudes toward history of pharmacy among administrators in American pharmaceutical education as a whole and how these are being put to work in teaching. The results of our survey provide a rather accurate national picture, since all of the 70 schools accredited in 1951 gave a ready response.[3]

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[1]Edward C. Elliott, "The General Report of the Pharmaceutical Survey, 1946-49," Washington, D. C., 1950, p. 4.

[2]See, for example, [Rufus A. Lyman], "The Editor's Page," *Amer. J. Pharm. Edu.*, 15: 79-81, 1951; Arthur H. Uhl, "The President's Page," *Amer. J. Pharm. Edu.*, 12: 566-569, 1948; W. E. Howland, "Why Study the History of One's Profession?", *Amer. J. Pharm. Edu.*, 7: 6-20, 1943; George Urdang, "History of Pharmacy as an Academic Discipline," *Journal of the History of Medicine and Allied Sciences*, 3: 5-10, 1948.

[3]The survey, begun on May 21, 1951, was conducted by submitting a list of questions by mail. Occasionally a question was not answered, so *the number of answers to a particular question does not always correspond to the total number of schools replying.* We are grateful to the deans for their splendid cooperation and interest.

What Instruction Is Being Given?

Thirty-six schools—over half of those surveyed—give a course devoted entirely to the history of pharmacy. Two schools (Wisconsin and Utah) offer more than one course.[4]

Thirty-five schools devote part of a course to the history of pharmacy, including three schools that also reported a separate course devoted entirely to history. Only two schools reported no instruction at all. One of these will require a semester course of two credits in history of pharmacy and ethics in the junior year, beginning with the class entering in the fall of 1951; the course will be supported by previous work of eight credits in the humanities and eight credits in American institutions. The other school not now teaching history of pharmacy in any form merely reported "insufficient interest."

Among the schools giving partial courses 25 indicated the time devoted to history in a form that could be tabulated. Only eight schools give less than 10 clock hours of instruction. Seventeen give 10 or more hours; of these, seven offer 20 hours or more.

Hence, at least half of the schools that devote only part of a course to history of pharmacy have made a substantial beginning in developing this area of instruction—in a few instances more substantial than some schools having a separate course.

What subject is history combined with, when not offered separately? Distribution is rather evenly divided among three areas of instruction; some combination with ethics and/or literature (11), orientation (11), and pharmacy (13).

More specifically, this breaks down as history combined with: ethics, 5; literature, 4; ethics and literature, 2; orientation, 11; pharmacy fundamentals, 3; pharmacy theory, 4; pharmacy technique, 1; pharmacy (not further identified), 5; some history interjected into several courses, 2.[5]

[4] A few schools possibly reported a separate course in history of pharmacy that actually includes literature and/or ethics. Such courses may or may not have a wholly historical orientation. Administrators were asked: "Do you devote a course entirely to history of pharmacy?" "Do you devote part of a course to history of pharmacy?" "If 'yes' what subject is it combined with?" It will be seen below that a number of schools reported combinations with ethics or literature as "part of a course" devoted to history. We believe that, in general, courses reported as devoted entirely to history were wholly or predominantly thus oriented, although ethics or literature might well be given special attention in the syllabus of some courses.

[5] These figures total 37, i.e., two more than the total of schools giving combined courses; this is because two schools offer some history in two different courses and thus appear in two of the above categories.

Comments volunteered by deans provide evidence that the history of pharmacy as an academic subject has lost some ground or has been stunted in its development at a few institutions because of rather intense competition for instruction time within crowded four-year curricula. While the importance of the humanities and social sciences—and history of pharmacy in particular—is often well recognized, the steady growth of the sciences upon which effective pharmaceutical education rests sometimes forces a choice.

Thus, two schools are known to have dropped, reluctantly, a required course in the history of the profession; both hope to reinstate it when an extended curriculum is adopted. A third school has had to drop a three-credit course this year; some historical background will be incorporated into one of its sophomore pharmacy courses. Another school doubts that the history course can be maintained much longer unless an extended curriculum should be adopted. Three additional schools that now devote only limited time to the subject hope to offer more adequate instruction in an extended curriculum. Still another school has definite plans to offer a special course "in the future."

How does this current picture compare with what was thought and taught in previous decades? The only previous study we know about was made by a temporary Committee to Study Courses in the History of Pharmacy (American Pharmaceutical Association), which issued four reports between 1936 and 1939. Headed by C. O. Lee, the Committee based its reports on college catalogs available to it.[6] Because of differences in survey method, tabulation and samples, only a rough generalization might be made from comparing the previous and present studies.

Lee's data show that not much more than half the schools in his samples listed a course in the history of pharmacy (required or elective) during the period studied.[7] One statement made by the

[6]For the original reports see the *Journal of the American Pharmaceutical Association*, 25: 1172-76, 1936; 26: 1106-08, 1937; 27: 1118-21, 1938; and 28: 923-25, 1939. In the respective years, Lee's Committee examined 44, 40, 58 and 65 catalogs. In the third year of the study some catalogs from the previous year were included to permit a larger sample of schools; the fourth year some catalogs from each of the three preceding years were used to obtain a fuller picture.

[7]On the average, in the years 1936-1938, Lee found that somewhat more than half of the schools in his samples listed in their catalogs either a required or elective course in the history of pharmacy. In 1939, when the Committee used catalogs from previous studies to help provide a more complete sample, the data showed almost exactly half the schools giving such a course.

Committee indicates that combinations with subjects such as ethics, literature and orientation were considered to be courses in the history of pharmacy.

If the schools now offering such combinations (and listed as part-courses in our data) are added to those reporting entirely separate courses, the total would represent about four-fifths of accredited schools. This tends to show that there has been a rather marked increase during the past 12 to 15 years in the number of schools teaching history of pharmacy.[8]

Required vs. Elective Courses

At the present time 28 schools require students to take a special course in the history of pharmacy. An additional five schools give the equivalent of at least one semester-credit in history as part of a combination course that is required.[9] Seven schools offer an elective (rather than required) course devoted entirely to history. One school (Wisconsin) offers, in addition to a required course, two elective courses (totaling 64 clock hours), plus special-study courses in the graduate area.

Has there been an increase, or decrease, of *required* courses since the late thirties, when Lee made his studies? If we adjust our tabulation of required courses devoted to history of pharmacy to try to make it correspond roughly with his in scope (in the way previously mentioned), then it seems that, proportionately, slightly more required courses appear in present curricula than in Lee's samples.

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[8] In the first two years of the Committee study, two instances were found where catalogs mentioned history of pharmacy as apparently rather minor parts of another course and were tabulated as such; no doubt because of the severe limitations imposed by catalog listings the Committee abandoned the attempt to tabulate part-courses.

[9] In the following list of schools that report a required course devoted entirely to the history of pharmacy, the numbers in parentheses indicate clock hours of instruction. (Where instruction time was reported in terms of quarter or semester credits, the clock hours have been estimated.): Cincinnati College of Pharmacy (34), Detroit Institute of Technology (16), Fordham University (32), University of Houston (36), Howard University (33), Idaho State College (36), University of Kansas City (32), Loyola University (32), University of Maryland (16), Massachusetts College of Pharmacy (32), Medical College of South Carolina (32), Medical College of Virginia (22), University of Michigan (32), University of Minnesota (11), University of Mississippi (32), Montana State University (33), University of New Mexico (16), Ohio Northern University (33), Oregon State College (48), University of Pittsburgh (32), St. Johns University (32), Temple University (32), University of Texas (32), University of Toledo (32), Wayne University (32), University of West Virginia (36), University of Wisconsin (48), and Xavier University (16).

Some schools give instruction in history as a minor part of another course that is required (i.e., less than the equivalent of one semester-credit). A few schools did not report information that would permit tabulation in terms of clock hours.

Position in the Curricula

The effectiveness of socio-historical teaching is influenced (among other factors) by the background in technical and general education that students bring to this study. Fifty-seven schools reported the year in which students are permitted, or required, to take history of pharmacy. Of these schools, 23 permit students to enroll only in the third, fourth or fifth year. The tabulation below indicates the number of schools permitting students to take history of pharmacy in the designated year or years:

First year: 18	**First or fourth: 4**
Second year: 10	**Third or fourth: 5**
Third year: 8	**Fourth or fifth: 1**
Fourth year: 9	**Variable: 1**
First or third: 1	

The rather large number of schools offering instruction in the freshman year—when students are least prepared to absorb the philosophical, social and scientific concepts and trends that pervade the history of pharmacy—is largely due to the subject being used as part of an orientation course.

Clock Hours of Instruction

Of 61 schools reporting clock hours of instruction offered, 24 schools, or two-fifths, give at least the equivalent of three credits on the quarter system or two credits on the semester system. The following table shows the number of schools falling within each increment of five clock hours:

Clock Hours of Instruction	Number of Schools
2 to 5	3
6 to 10	7
11 to 15	6
16 to 20	9
21 to 25	4
26 to 30	3
31 to 35	22
36 to 40	4
over 40	2
variable	1

Scope of the Courses

To learn at least in a general way what is being taught historically, deans were asked: "What is the scope of the course (as compared, for example, with the topics covered in the Kremers-Urdang *History of Pharmacy*)?"

About half (32) of the 63 schools replying to this question said essentially, that the scope of their course was the same as or similar to the Kremers-Urdang text.[10]

Four additional schools use outside readings besides the text, and two more add "current history."

Eight courses cover the Kremers-Urdang material in considerably condensed form; another 10 courses cover only a small fraction of the material in the text.

Four schools give increased emphasis to the history of American pharmacy (mostly U. S., 2; more emphasis on U. S. plus professional terminology, 1; more emphasis on U. S. plus pharmacy's part in society, 1). Two schools further restrict the scope to a primary focus on state history (state history plus some general history of pharmacy, 1; state history plus some U. S. history of pharmacy, 1). One school limits historical material primarily to pharmacopoeias and other literature plus U. S. professional organizations.

At the University of Wisconsin there is (besides a required survey course) an elective lecture course on the history of pharmacopoeias and a seminar on the development of pharmaceutical literature‡

Should Educators Be Educated?

It has been mentioned that the student's background of technical and general education influences the meaningfulness of historical study. What the teacher brings to the course remains, naturally, crucially important. A lecture recital of "facts" skimmed from the surface of the most accessible sources, which

[10]Twelve of these merely said that the Kremers-Urdang *History of Pharmacy* was "used." It has been assumed in tabulating that such an answer indicated a scope similar to the text, that is, following it in general without covering all material. Of the 32 schools 10 definitely stated that the scope was similar, and another 10 that the scope was the same.

‡The University of Utah announced three interesting elective courses in historical pharmacy after this report had been submitted for publication. Designed as special-study courses primarily for graduate students, these would cover pioneer pharmacy, drugs used by early settlers (including laboratory as well as library research), and the history of crude drugs.

the student ingests and regurgitates without digestion, provides little nourishment even to more mature students.

The effective teacher will dip deeply into the record of all that has happened to pharmacy in its interaction with lay and professional groups, search out the genesis of its contributions and its problems, come to conclusions about where pharmacy has been and may be going within the social context it can never escape. This teacher's lectures, irrigating the fertile ground of student minds already knowing the fundamentals of their chosen profession, will stimulate fruitful discussions and understandings.

It is true, as some say, that "anyone can teach history of pharmacy," at least after a fashion. And our survey shows that almost "anyone" may at present do so! No survey of this type can show, however, to what extent ill-prepared teachers, through love and enthusiasm and self-study, have achieved historical instruction at a university level, at a level that places its essential importance in the curricula beyond question. We do know that a number of teachers having ability and genuine socio-cultural interests gravitated to the historical course in their institutions. They have made something worth while out of what otherwise would have been a curricular stepchild. In other instances apparently the teacher did not naturally gravitate, but was pushed into it by force of circumstances.

This situation must be expected, and accepted (temporarily), in a field still rather youthful as an academic specialty. The important thing is that beginnings have been made, experience gained, while the subject is proving itself as necessary equipment for the well-educated neophyte with professional aspirations in and for his calling.

In other branches of the pharmaceutical curriculum not every school could begin in pharmacy with a Procter or Remington, nor in chemistry with a Chandler or Power. That applies likewise to the history of pharmacy. By what qualification or happenstance were the present teachers of history of pharmacy selected for their task? Well over half of the 48 schools supplying information on this point said it was personal interest on the part of the teacher, sometimes with some demonstrated knowledge

or ability besides. These and other reasons given may be summarized as follows:

Professional historian[11]	2
Former student of Edward Kremers[12]	2
Personal interest	15
Personal interest plus knowledge	11
Personal interest plus ability	1
Personal interest and enthusiasm	1
Experience (in pharmacy or education)	6
Best available	4
Willing	2
No one else willing	2
Uncertain as to reasons	2

Since the University of Wisconsin not only has been the pioneering center for history of pharmacy in this country, but now offers graduate study in the field, it has both opportunity and obligation to help professionalize pharmaceutico-historical teaching elsewhere. For this reason, each administrator was asked whether his teacher probably "would at some time wish to take studies at the University of Wisconsin, especially designed for present teachers of history of pharmacy, for a summer session, semester, or year?" Eleven schools said "yes"; 13 thought "possibly" or "perhaps"; and three were interested but felt the prospect "doubtful" or "questionable."

Although several deans commented that special work for present teachers was "a splendid idea," "very helpful," or "very desirable," there was evidence that expenses of attendance might be a stumbling block for some.

Two deans thought a beginning might be made by devoting to the history of pharmacy one of the Teachers' Seminars sponsored by the American Association of Colleges of Pharmacy and the American Foundation for Pharmaceutical Education.

[11]Of the two schools with professional historians, the one uses an "instructor" from the history department of the university whose "major is the history of the medical sciences;" establishment of a chair in the history of the medical sciences (medicine, pharmacy, dentistry and nursing) is being encouraged there. At the other school the historian has spent a lifetime in pharmacy, as pharmacist, journalist and—after graduate study in history of science, pharmaceutical chemistry and economics with a pharmaceutico-historical doctoral thesis—then as full-time historian.

[12]The designation "former student of Edward Kremers" as a qualification for selection of the teacher finds its justification in the pioneer pharmaceutico-historical work in the United States by Kremers and in the historical orientation of his undergraduate and graduate teaching at the University of Wisconsin. At least two other history teachers, besides those so identified, are known to have had the benefit of Kremers' tutelage.

The replies to this question in the survey encourage further planning for special studies. Meanwhile, present teachers of the history of pharmacy are invited to correspond with the University of Wisconsin School of Pharmacy concerning their interests and ambitions. We recognize that most such teachers already hold a Ph. D. in another pharmaceutical specialty, and that the aim here is not necessarily to train fully qualified professional historians.

To staff the schools, as circumstances permit, with fully qualified men, means a graduate program asking for pharmaceutical background as a basis for course work in the history of pharmacy and other sciences and related professions, infused with study in the humanities and social sciences, and culminating in demonstrated ability for research in the field.

Three graduate students already have embarked on just such a program at the University of Wisconsin, where study and research in the history of pharmacy, history of medicine and history of chemistry enjoy a close relationship with outstanding departments in history of science and in general history.

To learn how far the thinking of college administrators had progressed toward utilizing a Ph. D. of this caliber, the question was asked: "Do you foresee that your School or University will sometime add to the staff a Ph. D. who has majored jointly in history of pharmacy and history of science?" Five deans said "yes"; four thought "possibly" or "perhaps"; four were interested but "doubtful" of the possibilities.[13]

These potential positions in the academic field—plus opportunities that may open in pharmaceutical industry, journalism, certain government agencies and the like—testify to the fact that the outlook for doctoral candidates is by no means discouraging. In fact, promising pharmacy graduates with socio-cultural interests dominant over technico-scientific interests would be well advised to explore this field of graduate study.

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[13]For further information on the graduate program at the University of Wisconsin see the last article of a series on teaching history of pharmacy in the *American Journal of Pharmaceutical Education*, 14: 128-156, 1950; these articles also have been issued as a separate booklet, "Teaching History of Pharmacy," by George Urdang and Glenn Sonnedecker, American Institute of the History of Pharmacy, Madison 6, Wis., 1950.

In our survey the possibility of a "joint major" was suggested since some schools might not foresee academic scope for a full chair in the socio-historical field, but might arrange a joint appointment with another university department likewise interested in a man properly qualified in the history of science in general as well as the history of pharmacy in particular.

A second possibility in the graduate program is a minor in the history of pharmacy, with a doctoral major in some other area of pharmacy. For a man with this type of degree many colleges are waiting with open doors—at least if the right man appears at the right time with the right combination of major and minor fields!

Asked whether or not they saw "a future opportunity for a Ph. D. with a minor in history of pharmacy," no less than 25 deans answered "yes"; one said "probably"; 14 thought "possibly" or "perhaps"; and three would not say no but were "doubtful."[14]

Summary

A burgeoning interest in socio-historical study of the professions, and of civilization at large, seems to be reflected in current attitudes of administrators in American pharmaceutical education. The best evidence for this view is that half of all accredited schools now offer a course devoted entirely to the history of pharmacy, and 28 of them make it a required course. Nearly all the rest devote part of a course to this subject, almost invariably in combination with ethics and/or literature, orientation, or technical pharmacy. About a third of all schools give at least the equivalent of two semester-credits.

While one school after the other has begun historical instruction, a few schools felt impelled to drop it recently because of over-crowded curricula. The hopes expressed for resuming instruction in an extended curriculum tend to show that these are temporary setbacks, grounded in force of circumstances rather than changed attitudes.

Two-fifths of the 57 schools reporting on the position of the historical instruction in the curriculum do not permit enrollment before the third year. Both the scope and level of the courses vary widely.

Our survey confirms that most of the present teachers had been selected primarily because of personal interest rather than

[14]While concurring in a comment received that a minor in history was "an excellent idea," one dean expressed doubt that such men had been or would be trained. At this writing only one doctoral candidate has taken a minor in history of pharmacy, and he is already teaching in a Canadian pharmacy school. However, the growing recognition of this field, and the prospect of being able to convert a personal interest into an occupational one, as revealed by the survey, gives assurance that others will follow him into teaching

formal preparation, while others were drafted for duty under diverse circumstances.

About a third of the accredited schools feel that the history teacher would be or might be interested in taking special studies of a year or less. The same number would definitely like to have on the staff a Ph. D. with a minor in the history of pharmacy. And about one in seven can be said to foresee a time when they may appoint a Ph. D. with a major in history of pharmacy.

Current attitudes toward and aspects of history of pharmacy as an academic subject, thus revealed, encourage both present and prospective workers in the field and permit intelligent planning to help schools in their effort to use the humanizing and professionalizing influence of adequate courses and teaching.

Sequential Order of Courses in Physical Science and Mathematics in the Pharmaceutical Curriculum*

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The most significant reason for the substitution of collegiate instruction for apprenticeship training is that properly organized curriculums present the increasingly large volume of theoretical and factual information in an orderly sequence. Principles of science are brought to the attention of the student before he is expected to apply them to the solution of specific professional problems. A thoroughly learned principle becomes a part of the thought process, available to the automatic solution of the problem at hand. It should be the goal of good teaching to inculcate basic principles so thoroughly into the mind of the student that he may arrive at correct solutions without being aware of the mental machinery

*Read before the Conference of Teachers of Chemistry at the 1951 meeting at Buffalo.

which was set in motion by the problem. He should be able, upon demand, to retrace his thinking and justify the conclusion by citing the principles involved but in the ordinary practice of a profession there is infrequent demand for this justification. It is the teacher who is called upon for this type of thinking when he leads the student over the paths of reasoning for the first few times. It is the purpose of this paper to illustrate how the principle of sequential progress from the fundamental to the applicable in the physical sciences and mathematics contributes to an efficient curriculum in Pharmacy.

In the first year of the college curriculum the tasks are to lay a sound foundation of the elementary principles of physical science and mathematics and to bring the unequal preparation of the high school graduates to a common level of understanding. It is common experience to have first year students present themselves with (a) no high school credit in chemistry; (b) no physics; (c) credit for one year of physics but no chemistry; (d) credit for one year of chemistry but no physics; (e) credit for one year each in chemistry and physics; (f) credit for one year of mathematics; (g) credit for two years of mathematics; (h) credit for two and a half or three years of mathematics including trigonometry. The mathematics credit may be without any accompanying credit in chemistry or physics or with any possible combination of mathematics, chemistry and physics.

The quality of instruction in any of the high school units presented is variable and the availability to the student of the principles taught in even the better courses will depend upon the maturity of the student and the interval between high school and entrance to the college course.

One way out of the difficulty is to administer qualifying tests in these subjects and to assign students of approximately the same levels of understanding to separate sections where the place of beginning and the rate of progress can be adjusted. In large University classes, this is the accepted procedure. It contains an argument for the administration of the first year of basic science work in the general college.

The introductory college course in chemistry is universally offered in the first year and concerns itself with establishing the

fundamental laws of the physical sciences on an experimental basis. Definitions, the laws of conservation of matter and energy, combination of matter, the relationships between matter and energy, the symbols and their meaning, the periodicity of properties, an introduction to the nomenclature and language of chemistry, the sources, methods of procurement and purification, the properties and uses of inorganic chemicals constitute the principal subject matter of general chemistry.

It is generally the case that the first year of college mathematics is scheduled during the same collegiate year as general chemistry. The objectives of this course should be, (1) to equalize the uneven quality of the high school education in mathematics (2) to further extend the capacity of the student to think mathematically, (3) to provide additional mathematical tools for the better understanding of quantitative relationships in chemistry and physics.

First year college mathematics has been standardized in its content and method of presentation to the point where it is almost pedagogical heresy to suggest any alteration in the pattern. As a teacher of chemistry who looks upon mathematics not as an end in itself, but as an indispensable tool for the understanding of the physical sciences, I am heretical enough to suggest that a few alterations in the standardized pattern would be most useful.

Rather early in the course in chemistry, the student is expected to take quantitative data to illustrate the truth of the several laws such as those of Boyle, Charles, and others. The calculations of results from some of these experiments require the multiplication and division of several terms. In these calculations, the ability to use a slide rule and/or logarithms enables the student to determine answers quickly and accurately without resort to laborious arithmetical calculations. When the first course in chemistry includes qualitative analysis, and understanding of logarithms is indispensable. The early introduction of graphical representations of scientific data calls for at least an introductory knowledge of analytical geometry.

What is called for, is a first year college course in mathematics which will present the mathematical concepts useful to the first year chemistry student in a sequence which will enable the

student to apply these principles as he needs them. It may require consultation between the department of mathematics and the department of chemistry in order to organize such a useful course. Whether such an unorthodox approach to mathematics teaching would be acceptable to a mathematics major, I cannot say. Experience has shown that it can be done to the benefit of the teaching in chemistry.

In many chemistry sequences, two semesters are devoted to general inorganic chemistry and one semester to inorganic qualitative analysis. This sequence permits a more leisurely approach to qualitative analysis and the inclusion of more of the descriptive material in the first two semesters. A considerable number of excellent sequences in chemistry present the general principles and laws of chemistry in one semester followed by a systematic course in qualitative analysis. This emphasizes the principles of chemistry and minimizes the description of chemicals and their uses.

In pharmacy curriculums, such an arrangement has some advantages. It makes it possible to organize the descriptive part of inorganic chemistry in a course which can give the needed emphasis to those chemicals and their preparations which are a part of the pharmacists' stock. Having a grasp of principles, a descriptive course can be presented which will enable the student to see how these principles are applied in the manufacture and purification of chemicals and the fabrication of pharmaceutical preparations. It will give meaning and importance to the monographs of the official standards. As has been pointed out elsewhere, a suggested title for such a course is Inorganic Pharmaceutical Chemistry. It should follow as closely as possible the first course in general chemistry and qualitative analysis.

The second year of college is traditionally the place for the course in physics. It is logical to place it at this point because of the usefulness of the first course in mathematics to the study of physics. It can hardly precede mathematics, yet it should be early in the physical science sequence because it is fundamental to other disciplines both in the physical and biological sciences.

Physics should afford the student an understanding of the basic laws and principles of mechanics, electricity, sound, heat and light. Many of the processes of physiology and pharmacy, the

measurements in chemistry, physiology, pharmacology, biological chemistry and pharmacy utilize these principles. Unless a comprehension of physics is acquired early in the curriculum, the study of other courses is apt to be empirical in approach and unattractive to the better type of student.

The course in organic chemistry should afford the student (1) an acquaintance with the accepted principles of nomenclature and with the structure, occurrence, general and characteristic class reactions, methods of synthesis and properties of organic compounds and the fundamental theories of organic chemistry; (2) acquaintance with the skills and techniques of the organic laboratory, many of which are used without modification in pharmaceutical practice; and (3) acquaintance with the properties which affect the stabilit and compatibility of organic drugs and, by extension, the suitable conditions for their storage, preservation and use.

Because of the usefulness of a knowledge of organic chemistry to many of the other courses in the pharmaceutical curriculum it is essential that it be placed early in the sequence of courses. It is suggested that it should be offered in the second year of college experience. There has been some objection that in a 2-3 or 2-4 pattern of education, the placement in the second year would require organic chemistry to be presented as a pre-professional subject with some loss of pharmaceutical emphasis. If the pattern of the curriculum places courses in physiology, pharmacy, pharmaceutical technology, or pharmacognosy in the first professional year, organic chemistry, must be required as a pre-professional subject. If none of these courses are offered until the second professional year, there may be some advantage in offering organic chemistry in the first professional year. An important advantage is that it brings it closer in time to the uses which are made of it.

The student has usually been introduced to some quantitative procedures in his study in general chemistry and physics. In the course in Quantitative Analytical Chemistry, he should acquire (1) an acquaintance with the language of quantitative analytical chemistry so that he may be able to interpret and follow the directions of official assay procedures; (2) an acquaintance with the type assay procedures of volumetric gravimetric and colorimetric analysis; (3) an appreciation of precision techniques, experimental ac-

curacy and dependability, and the limitations of apparatus and methods; (4) increased familiarity with such concepts as pH; (5) fundamental understanding of topics such as, the theory and use of indicators, adsorption, colorimetry, precipitation; and (6) increased faciiity in making chemical calculations.

Educationally, the student is prepared for the study of this subject upon completion of the course in qualitative analysis. No great disadvantage accrues, however, if the study of quantitative analysis is delayed until the third year if scheduling organic chemistry is necessary in the second year. Quantitative analysis must precede physical chemistry and biological chemistry in any case. The techniques and understanding derived from quantitative analytical chemistry contribute substantially to the study of pharmacy, pharmacognosy and pharmacology.

A second year course in mathematics which is based upon the type of first year course which has been previously recommended might be organized which would comprise an extension (if necessary) of the principles of analytical geometry, those portions of the calculus which are most useful to the non-engineering science student and an introduction to the study of statistics. In the forthcoming monograph on the pharmaceutical curriculum, such a course is outlined by topics. It, like the first year course suggested, departs from tradition. It was carefully outlined by two of my colleagues, one a mathematics professor and the other a physical chemistry professor, who is also trained and experienced in the applications of physical chemistry to biological research. The details cannot be given here, but the justifications are convincing.

The reason for suggesting a departure from the traditional mathematics sequence and course content is the necessity for saving time in the crowded pharmaceutical curriculum without denying the student of pharmacy the benefit of a working knowledge of the calculus and statistics. The former discipline is pre-requisite to the type of understanding required of students of physical chemistry and the lattter has become nearly indispensable for an understanding of the literature in pharmacology and the biological science. Longer courses in these disciplines would serve the purposes intended, but it is suggested that the specially designed course would be adequate.

The combined course in The Calculus and Introduction to Statistics should develop in the student (a) a basis for a systematic comprehension of chemical statics (steady states; equilibria) and kinetics (changing states; kinetics of reactions); (b) ability to express data relating to these states in conventional, scientific formulations; (c) ability to read and understand mathematical statements in current scientific literature; (d) ability to use and understand a method of approach for testing the validity of conclusions drawn from data taken from systems in which there exist uncontrollable variables.

This course should precede as closely as possible the course in Physical Chemistry; this places it in the first professional year of either a 1-4 or 2-4 curriculum plan or in the second pre-professional year of a 2-3 program.

Among the values which the student should derive from a substantial course in physical chemistry may be mentioned:

(1) Appreciation of the convergent nature of the basic principles of physics and chemistry. (2) Appreciation of the value and importance of fundamental theory in explaining and predicting the behavior of particular systems. (3) Knowledge of the method of describing chemical systems mathematically. (4) Increased familiarity with the behavior of systems composed of gases, liquids, solids and solutions. (5) A scientific basis for understanding processes which may have been carried out in the past empirically or are to be carried out in future courses and in practice such as: (a) solution, distillation, evaporation, sublimation, crystallization, extraction, peptization, emulsification, colloid precipitation and stabilization; (b) determination of molecular weights, vapor pressure, melting points, freezing points, eutectic points, boiling points, solubility, pH, oxidation-reduction potentials, buffer capacity, distribution constant, surface tension, viscosity, rates of reacton and isoelectric point. (6) Knowledge of the methodology and instruments used in making physical measurements on chemical systems. (7) A scientific basis for understanding the chemical reactions which are studied in biological chemistry, physiology and pharmacology. (8) Knowledge upon which to base future development of new or improved dosage forms, more

efficient utilization of medication, and more efficient manufacturing processes.

Instruction in physical chemistry should be preceded by quantitative analytical chemistry, organic chemistry, and the calculus. It should precede the course in biological chemistry, physical pharmacy or the second course in general pharmacy and pharmacology. It can contribute much to an understanding of physiology. Plans have been submitted by the Committee on Curriculum showing its integration into the second professional year of a 1-4 or a 2-4 plan and the first professional year of a 2-3 plan.

A study of biological chemistry should result in the student acquiring:

(1) An understanding of the application of fundamental concepts to life processes (normal and pathological). (2) Knowledge of the composition and interrelationships of carbohydrates, proteins, and lipids, and the role of enzymes, hormones, vitamins, and minerals in the life processes (normal and pathological). (3) Ability to interpret the pharmacodynamic action of drugs in terms of chemical principles. (4) Knowledge of the principles and techniques of determining the metabolic fate of foods and the absorption, fate and excretions of drugs.

The study of biological chemistry should follow the courses in organic chemistry, quantitative analytical chemistry and physical chemistry. It should precede or accompany the study of physiology, pharmacognosy and the chemistry and pharmacy of medicinals and should be pre-requisite to pharmacology and dispensing pharmacy. It has been integrated by the Committee on Curriculum in the third professional year of a 1-4 plan, the second professional year of a 2-3 plan and of a 2-4 year curriculum plan.

Among the values to be derived from an organized course on the chemistry and pharmacy of medicinals may be mentioned:

(1) Understanding of the chemical structure, pharmacological action, and pharmaceutical use of medicinals, and the effect of modifications of structure (isomerism, homology, analogy, isosterism, et cetera) upon their physical, chemical, and pharmocological properties. (2) Appreciation of future possibilities of new and as yet unforeseen developments in the field of medicinals in the light

of past experience. (3) Ability to read and interpret the nomenclature of new medicinal agents and to evaluate the therapeutic claims of competing products bearing unrevealing trade names. (4) Ability to recognize potential incompatibilities when two or more medicinal agents (official drugs, proprietaries, specialties) are combined and ability to suggest ways of avoiding such incompatibilties.

Because of the nature and objective of this course, it should be scheduled late in the curriculum, after the completion of other courses in the physical sciences. It would be most desirable to have the course completed before the last course in dispensing pharmacy is presented and before the student is permitted to go out for an elective college supervised experience in retail establishment. The course is profitably scheduled in the same semesters as pharmacology but will also contribute considerably to the latter study.

In most of the five year plans, it will necessarily be scheduled in the last college year. In one 2-4 plan it appears in the second professional year and in another in the third professional year.

As a result of the course in drug assay, the student should achieve:

(1) Familiarity with a wide variety of quantitative procedures. (2) Familiarity with the problems of quantitative separation of pure principles from mixtures. (3) Knowledge of the changes taking place in manufacturing processes which affect the quantitative composition of dosage forms. (4) Knowledge of the changes taking place during storage which affect the quantitative composition of some preparations. (5) Knowledge of legal limits of variation between label and quantitative composition. (6) Knowledge of methods of sampling applicable to drug assay. (7) Additional skill in the use of analytical instruments.

The type of information and the skills required for the proper understanding and performance of drug assay procedures make this course one which properly belongs late in the curriculum. It makes use of the values achieved in all of the courses in physical science and mathematics described in this paper. In addition, the

biological sciences contribute a not inconsiderable share toward the judgments which a drug analyst may be required to make regarding limits of impurities which may be permitted. Reasonably then, the course in drug assaying should be scheduled among the courses of the last year of the professional curriculum.

Physical Chemistry for Pharmacy Students

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There seems to be general agreement among educators that one of the most important objectives of pharmacy education is to teach students to apply scientific principles to pharmaceutical problems. This objective implies that courses must be taken by students in proper sequence so that elementary concepts are mastered before more advanced material is presented, because presentation of advanced material to inadequately prepared students encourages their memorizing trivial rules and typical applications as a substitute for independent scientific thinking.

In order to provide an adequate foundation for instruction in scientific pharmacy, the University of California College of Pharmacy requires that all students take a course in physical chemistry during the first half of their junior year. This course, consisting of approximately 32 hours of lectures and 96 hours of laboratory instruction, is preceded by the usual required courses in general, analytical, and organic chemistry, college physics, and mathematics and is followed by instruction in advanced pharmacy which includes much of the material outlined by Professor Busse under the heading of physical pharmacy[1]. Experience in presenting the course in physical chemistry described above has convinced the author that considerable teaching skill is required in coping with inadequate student preparation even at this level, indicating that the teach-

ing of physical pharmacy without a preceding course in physical chemistry would be very difficult indeed[2].

Mathematical Preparation—In order to better prepare students for physical chemistry, plans to include calculus as a part of the requirements in mathematics are at present under consideration, and about half of the students taking the course in physical chemistry have studied calculus in elective courses. These students are, for the most part, convinced that the additional time spent on mathematics is justified, and those who have not taken calculus find that it is quite difficult to progress beyond a certain point in physical chemistry. However, up to a certain point their progress is quite satisfactory, indicating that two semester-units of didactic instruction in elementary physical chemistry can be presented profitably without calculus, provided accompanying laboratory instruction is designed to illustrate and clarify basic concepts.

Preliminary Instruction—When teaching a four-unit course designed to accomplish a very specific educational objective in physical chemistry, it is obviously impossible to take time to review topics presented to the students in mathematics, physics, and analytical chemistry, even though these ideas are absolutely essential in pursuing the necessary instruction. In order to guarantee that all students do have adequate background, a special review course without credit is given to sophomores. This course consists of a series of examinations in mathematics and chemical calculations. Each examination is followed the next week by a discussion of the problems presented, and each discussion is followed by a repeat examination. Arrangements are made so that students who successfully pass any one examination are relieved of the responsibility of attending further meetings of the course. This exercise encourages review without confusing the students by attempting to teach material that they have had in other courses. However, it is necessary to recommend a textbook dealing with calculations in chemistry in order to provide some students with enough information so that they can review successfully.

Because of the arrangement at the University of California which enables students to take analytical chemistry in one of several different colleges throughout the State, or at the College of

Pharmacy during their sophomore year, it is necessary to take great pains to see to it that the course in physical chemistry is set up in such a way that students are made aware, at the very beginning, of any deficiencies that they may have in their background, so that, entirely on their own initiative, they may review whatever may be necessary. This is accomplished by designing the lecture course so that the first part deals with topics related to chemical equilibrium, energy, and rate of reaction. This material is placed in the first part of the course, because it may be presented in such a way that the average student is able to recall a large part of it from his experience in previous courses. Another technique found most effective in encouraging independent review is to present laboratory assignments so that in the beginning the entire class is occupied with comparatively elementary assignments that may be related to previous experience.

Laboratory Instruction—The laboratory course begins with the calibration of a thermometer by procedures which demand some understanding of the phase rule and the general concepts of temperature equilibrium, thus suggesting the need for reviewing topics from courses in college physics. Other assignments include the study of cooling curves, partition coefficients, the preparation of standard buffers of the U.S.P., the study of indicators and titration curves, and the hydrolysis of salts. The determination of the rate of hydrolysis of an ester is next introduced, followed by the laboratory study of colloidal preparations, dialysis, tests for colloids, coagulation, protective colloids, adsorption and sedimentation.

During the first two weeks of the laboratory the student has time to complete several of the series of assignments outlined above and still become familiar with more elaborate equipment. A number of instruments are set up in the laboratory. These instruments are selected on the basis of applicability as teaching aids and also in terms of practical usefulness in pharmacy. The pH meter and the conductivity bridge are used to illustrate ionic equilibrium. The Victor Meyer apparatus is used to teach the gas laws. Instruments necessary to determine the specific gravity, refractive index, surface tension, and viscosity of liquids are related to previous instruction in physics so they may be mastered early in the course. A polarimeter is made available for the study of optical activity.

Equipment for determining freezing point lowering and boiling point elevation aids in teaching the subject of osmotic properties. The determination of melting points and boiling points facilitates the study of phase equilibrium. A photofluorometer, a spectrophotometer, and a turbidimeter or nephelometer are presented under the heading of photometry. A slit ultramicroscope, interfacial tensiometer, and a film balance are included in the equipment needed to study surface chemistry.

The students are assigned to sections of such size that there are two or possibly three students per instrument. Although the entire class has sufficient work on the first series of assignments to occupy all of its time during the first few weeks, each student is encouraged to interrupt this desk work whenever time may be profitably expended in becoming thoroughly familiar with the one special instrument to which he and his partner have been assigned. Each student is encouraged to become expert in the use of his assigned instrument as quickly as possible, and to prepare a report on its use which may be delivered orally before the class during a laboratory conference. The laboratory conference periods are distinct from the lectures and occupy roughly 20% of the laboratory time. They are devoted to informal discussions and also to the presentation of basic principles involved in various laboratory assignments. It is believed desirable to devote a few lectures at the very beginning of the course to the special instruments available, correlating their use with previous experience in courses in college physics. For example, the student requires no elaborate instruction in the Wheatstone bridge or potentiometer provided he is interested and is merely reminded that at one time he studied these circuits. Various devices for determining surface tension, the refractometer, the polarimeter, and many other instruments may be made to seem familiar to the student merely by calling his attention to the fact that he has studied modified forms of the same equipment in the physics laboratory. However, if time is not spent in encouraging the recall of this valuable information by informal group discussion, many students will fall into the habit of attempting to memorize all of the detail as if it were new and not related to principles learned before. Considerable conscious effort on the part of the instructor is necessary to develop the habit of relating new

laboratory work to the old, especially when the instrument used may have been discussed and presented only once during a course taken one or two years previously.

The lectures—The lecture part of the course in Physical Chemistry is divided into four parts as follows: 1. Equilibrium and rate of reactions; 2. States and properties of matter; 3. Solutions; and 4. The influence of heat and electrical energy. This arrangement is based upon the principle of adjusting the course to the students' background, rather than attempting to establish an entirely logical or conventional arrangement. The first portion dealing with equilibrium and rate of reaction gives the instructor an opportunity to introduce the first and second laws of thermodynamics and the meaning and use of many energy units as an extension and continuation of courses in physics. After establishing the general concept of equilibrium, phase diagrams and transition points are discussed in relation to the phase rule. Later, the law of mass action is presented as the basis for the study of chemical equilibrium and chemical kinetics. Every effort is made to present the law of mass action as one of the most important scientific principles to be mastered. Students are required to derive for themselves all of the approximate equations required for calculating pH and for developing titration curves. Without calculus it is difficult to hold to the same standards when dealing with the subject of chemical kinetics, but it is possible to relate the fundamental law of mass action to chemical kinetics and the concept of order of reaction. The better students are somewhat resentful if much lecture time is devoted to developing algebraic formulas, because they feel that they are quite capable of applying algebra themselves. However, the weaker students are grateful for any help they receive. This difference in student interest leads to the compromise of devoting only two lectures to the subject of the calculation of pH and the derivation of all the approximate equations. In addition, a syllabus provides a large number of related problems. Very complete solutions to these problems are written out in a separate section of the syllabus. These problems and answers serve to eliminate the need for detailed review of calculations as a part of the formal lectures, but the majority of students by actual vote request that the problems be assigned, checked and

returned. They feel that without this additional incentive to devote a certain amount of time to the problems there is a tendency to neglect them.

The second part of the lecture course deals with the states and properties of matte. By following the school of thought that includes the colloidal state along with the gaseous state, the liquid state, and the solid state, it is possible to present a logical development under this heading. It is important for the student to obtain a working knowledge of the elementary theories and practical measurements related to such properties as vapor pressure, surface tensions, viscosity, etc. He must also have a clear qualitative picture of the significance of crystal structure and the energy and kinetic considerations involved in the transition from one state to another. The elementary parts of colloidal chemistry are presented about as they appear in a good textbook in physical chemistry[3], but special attention is called to the fact that any substance reduced to colloidal dimensions may be thought of as having entered the colloidal state of matter.

The laws of ideal solutions, distillation studies, methods of expressing composition of solutions, etc., are presented in very much the same way as they are presented in textbooks in physical chemistry. However, conscious effort is made to point out, whenever possible, how this material was previously introduced into other courses. It so happens that a good many different presentations of the same material may be found in laboratory courses in organic chemistry. As the student obtains a grasp of the ideal solution laws, it is possible to present the colligative properties of un-ionized solutes in a logical manner while developing at the same time the generalized concept of isotonic solution. Ionic solutions are then presented, and the idea of calculating the osmotic properties of electrolytes from freezing point measurements is brought up, first in a general way, and finally in such manner as to provide adequate background for the later study of the adjustment of isotonic prescriptions in a course in dispensing. Some time is profitably spent in explaining exactly how phase diagrams are related in principle to diagrams showing maximum and minimum boiling points. Apparently few students are aware of the fact that these diagrams are merely graphical representations of various

laboratory measurements which they themselves could make without difficulty. Once a student sees exactly how the graphical method is set up and how he would proceed to locate points on the graph as a result of his own laboratory work, the whole subject becomes quite clear to him.

The last section of the lecture material, dealing with the influence of heat, light, and electrical energy, is placed at the end of the course in order that all of the members of the class may have previous experience with the conductivity bridge, the pH meter, and other instruments related to the subject matter of this section. Conventional treatment of electrical conductivity, electrode potentials, and very elementary thermodynamics of galvanic cells causes no serious difficulty. The mathematical requirements are not excessive, provided the student has become acquainted with the method of writing delta quantities in a thermodynamic sense. This concept is developed in the first quarter of the lecture work. The study of photochemistry, photometry, and polarimetry as presented in textbooks in physical chemistry is also included in the last quarter of the lecture outline. Very little time remains for the development of the physical theories related to chemical structure, but at least one lecture is reserved for the presentation of such important concepts as dipole moments, molar refraction, and other topics related to the molecular structure of organic compounds.

Every effort must be made in planning this presentation of topics in physical chemistry to see to it that a discussion of atomic structure, the periodic table, elementary quantum mechanics, and nuclear physics is not neglected. However, in the two lecture units available, it has so far been impossible to incorporate these topics adequately in the time allotted, and it is hoped that it may be possible to include more of this essential information in an expanded course in physical chemistry.

Correlation of lectures and laboratory work—The laboratory portion of the course proceeds in such a way that during the first part of the semester the entire class is engaged in working with elementary locker equipment on assignment designed to illustrate the basic concepts of the first two sections of the lecture course. During this time the class gains increased skill and understanding of the instruments made available for its use, and by the end of the

course every student has has had an opportunity to make measurements with each instrument.

Because it is impossible to provide a sufficient number of instruments so that each instrument is studied in the laboratory at the time it is discussed in the lecture, some individual instruction is necessary. After the first two or three weeks of laboratory work, students from each section have become quite expert with their special assignment, and are capable of giving instruction to other members of the class. The special instrument assignments are originally given so that each instrument will be provided with two or more student operators who are encouraged to share their skill with other members of the class. This method of laboratory instruction seems to be essential. Attempts have been made to mimeograph precise directions for the use of each instrument but these directions have never proved entirely satisfactory in spite of the fact that considerable care has been taken in their writing. Students seem to need personal instruction when they are approaching complicated instruments for the first time.

Examinations—The problem of providing adequate examinations so that each student can learn his standing in the class is difficult because of the limited time available. The present policy is to give frequent quizzes designed to take approximately 15 minutes at the end of the last lecture of the week. Because time is short, the quizzes must be mimeographed and must be presented in such manner that students are not required to spend time puzzling out complicated problems. Attempts to give formal examinations during laboratory meetings are not too successful because of the necessity of providing duplicate examinations for several sections. However, the laboratory work itself serves to indicate progress and proficiency especially in view of the fact that each student is serving part-time as an instructor. If for any reason he is not fully informed concerning his assignment, his deficiency is very quickly brought to his attention by other members of the group.

No satisfactory method has been discovered for separating the problem of grading students from the problem of teaching students. However, it is extremely important in the type of laboratory instruction outlined above to develop a sense of security on the part of students working in the laboratory. They must feel

perfectly free to ask questions, to display ignorance, and to even break equipment without any fear of reprisal in the form of a low grade. In order to develop this feeling of security, it is announced in the beginning of the course that only certain clearly designated exercises shall be used for the purpose of grading. Distribution of unknown sample, grading notebooks, and other conventional laboratory examination procedure are entirely satisfactory provided the students are aware that only those assignments which are announced previously as examinations shall count toward their grade. The final course grades are based upon an accumulation of quiz grades, final examination grades, midterm grades, and laboratory grades which are accumulated in the manner suggested above. In addition, students are encouraged to find time to perform some special assignment and to write a report which is graded as a part of the laboratory work.

Correlation of Physical Chemistry and Pharmacy—The presentation of optional reports is the source of considerable interest and enthusiasm especially when the students have been encouraged to exercise their own ingenuity in discovering for themselves topics they would like to study. No restrictions or requirements are imposed, but an attempt is made to encourage students to find their own topics for study through consultation with members of the pharmacy staff. Because of this contact, the students are much better able to see the importance of their study of physical chemistry as a preparation for instruction in advanced pharmacy, and members of the pharmacy staff and those teaching the basic sciences are encouraged to engage in an informal spontaneous exchange of information concerning the goals and achievements of various courses. The whole staff becomes aware of the importance of encouraging students to recall principles they have already learned and to apply them to pharmaceutical problems.

The instruction described above is for the most part effective, although occasionally deficiencies are discovered and corrected whenever possible. Available evidence seems to indicate that the students do not long remember details concerning the operation of all of the instruments they have worked with, but they do not hesitate to undertake to relearn a required procedure on their

own initiative from written instructions when need arises. They also seem to develop some ability to apply basic principles to new procedure suggested by their contacts with courses in pharmacy.

It must not be assumed from the foregoing comments that students who complete a course in elementary physical chemistry are capable of proceeding, without further instruction, to the more complex physical chemical problems encountered in pharmacy. No amount of instruction in physical chemistry short of a professional chemical training can accomplish this objective. However, it is quite possible for competent pharmacy teachers to develop the student's interest and aid him in applying fundamental principles. It is also necessary to provide orientation with respect to pharmacy for the student taking basic science course, lest he become discouraged in the progress he is making toward his goal of becoming a pharmacist. However, this orientation must be approached with caution because of the great danger of diminishing interest in the potential intellectual achievement associated with the scientific subjects themselves. Once the student is convinced that he is spending his time wisely, he can be trusted to become interested in a course in physical chemistry if properly presented; but if he falls into the habit of seeking pat explanations for a few pharmaceutical procedures, he is not likely to gain much of lasting value from the course.

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Pesticides—Their Place in the Pharmacy Curriculum*

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Increased awareness of the health problems of economic poisons is fostering suggestions for medical and pharmacy courses on pesticides. They include a variety of educational approaches such as (a) specialized courses on the toxicology of pesticides, (b) substitution of new pest control chemical for certain well-known but little used drugs, such as strychnine, which are employed in pharmacology laboratory demonstrations, (c) integration of information on pesticidal chemicals in existing pharmacology, toxicology, and public health courses, and (d) the establishment of post-graduate seminars, refresher courses and other types of organized instruction for graduate practitioners. In the main, these proposals have been prompted by the belief that properly informed pharmacists can significantly help in the effort to foster a better understanding and safe use of pesticides.

Underlying the several foregoing concepts is the growing recognition that all pharmacists should have more than a passing familiarity with the nature, uses and limitations of pesticides. The need for retail practitioners adequately informed in this field has been apparent to pharmaceutical educators for some time. It was first crystallized in the findings and recommendations of the Commonwealth Survey of Pharmacy (1927). Commenting on pharmacy's role in the distribution of economic poisons, the Survey states that "The pharmacist is the chief source of information and materials for the control of insects, fungi and parasites. He has a definite responsibility for carrying insecticides, fungicides, fumigants and similar products, and for giving information concernig the dangers in their use. This is particularly necessary in rural communities where commercial users (of economic poisons) are important". It further states that although the public may secure

*Read at the 1951 meeting at Buffalo.

information from a number of sources including schools, newspapers, publications of state and federal agencies, frequently the most convenient and accessible source is the local pharmacist. On the basis of these findings, the Survey recommended that the pharmacy curriculum be broadened to include a comprehensive review of materials used in pest control.

The major organized effort to present information on this subject to pharmacy students is undertaken in the basic course in pharmacognosy although some facts may be incluuded in dispensing, pharmaceutical chemistry, pharmacology and similar lectures. Pharmacognosy instruction, however, is concerned primarily with products of plant and animal origin. Both in theory and in practice this excludes many of the currently used pesticides of economic and medicinal value, especially when the lecture material is organized along taxonomic or morphologic lines. A few schools have recognized this weakness and offer elective courses on pesticides in the pharmacognosy department. These schools are usually located near to intensive agricultural areas and, presumably, provide such courses for those who will return to rural communities to practice. A sound background of information on pesticides is needed, however, by those who plan to practice in urban centers as well as in rural areas. This point was effectively brought out in the Commonwealth Survey. In a review of the inventories of 27 typical neighborhood drug stores in metropolitan and rural areas, all the sampled stores carried some type of pesticide merchandise and the range of articles varied from 5 to 31 items including accessories for the application of pesticidal materials.

With the increased diversification which has taken place in the drugstore in the quarter century since this Survey was taken, I feel certain that the pattern of these findings holds even more true today. The number of pesticide items which are stocked by the neighborhood pharmacy is probably much larger because of the greater use and variety of materials which have been developed in the last few years. For example, pesticides are finding an expanding use in medicine as well as in agriculture as evidenced by the inclusion of five of the newer synthetic agents in the latest revision of the United States Pharmacopeia. Animal health

techniques employing the newer synthetics are commanding a more important role in veterinary pharmacy. Household, retail and small bulk users of pesticides are also on the increase and the drugstore is one of the principal local distribution points serving such users. For these and numerous other reasons, therefore, pharmacists in all types of retail practice have need for a more adequate background on pesticides.

It is fully appreciated that any increase in the amount of attention which can be given to pesticides in the already overcrowded pharmacy curriculum must be obtained at the expense of presently emphasized subjects some of which may have much greater historic importance. However, the proper integration of this new material into the pharmacy curriculum as a whole may not require as many extra teaching hours as might originally be expected. It may be possible that by judiciously substituting pesticidal information all along the line a more balanced pharmacy curriculum rather than a longer one may be obtained.

The matter of integration raises the important question of the proper place of pesticides in the pharmacy curriculum. Do pesticides belong in the pharmacognosy department with its emphasis on the qualities, identification and uses of products of biologic origin, or does this important group of chemicals belong in the pharmacology division where the actions, prophylactic, therapeutic and epidemologic uses, toxicity and biochemical relationships are studied? This question has no easy and ready solution because knowledge has a unity which discourages compartmentalization. Nevertheless, for the purpose of instruction it must be assigned to one of the several pharmaceutical disciplines.

Pesticides have traditionally come within the purview of the pharmacognosy departments in pharmacy schools. This may have been due in part to the older concept of pharmacognosy as a science of crude drugs and compounds and possibly to the desire to keep pesticides and other non-medicinal agents separate and distinct from those which have predominately therapeutic value. Pesticides from plant and inorganic sources, however, have been largely supplanted by those of a synthetic organic nature. To some, this

would indicate that such materials are outside the scope of this science. The current trend in pharmacognosy is to embrace synthetic substances related to natural products and to create a broad understanding of their biology and chemistry as they relate to other sciences. The continued retention of this class of chemicals in the pharmacognosy department at the undergradate level is, therefore, justifiable.

This concept of the place of pesticides in the pharmacy curriculum does not preclude their further consideration in the course material in pharmacology, advanced pharmacy or public health courses. Pharmacology and other departments in pharmacy schools have a sound basis for the inclusion of information on pest control chemicals in the basic courses which they sponsor. Most certainly, pharmacy students have need for thorough instruction in the action, metabolism and injurious effects of economic poisons, the methods of their manufacture and formulation and their potential health hazards to various groups of people who use or are exposed to them. These considerations are most appropriately discussed in the courses which devote special attention to such factors.

The collection and selections of current, pharmaceutically significant facts on pesticides for inclusion in the foregoing pharmacy courses is a challenging problem. The available data are scattered among a variety of publications many of which are frequently not readily accessible. Its organization, so that the various practical relationships to pharmacognosy, pharmacology, public health and retail pharmacy practice are apparent to the student, is equally difficult because of the lack of a suitable textbook on pesticides adaptable to the requirements of training for pharmacy or the allied health professions. There is a definite need for a moderate sized text which covers the basic principles of pest control, their application to the economic and health problems, and the significant information on chemical control measures required by the pharmacist in the fulfillment of his professional responsibilities.

An effort to fill this gap and provide this much needed information has been undertaken by the Committee on Pesticides of the American Medical Association. It is sponsoring a series of reports on those aspects of pesticides which are of immediate medical interest. These reports, in reprint form, are being distributed to key medical, pharmaceutical, entomologic and public health sources all over the world. Medical and pharmacy schools are included in this mailing. To supplement this immediate educational program, plans are developing for the preparation of comprehensive reviews of all facets of information on pesticides. These reviews will be prepared in monograph form for eventual publication in a Committee manual on pesticides.

We hope that the reports and the other information services which the Committee provides will stimulate the interest of pharmacists and physicians in the vital economic and hygienic importance of pest control chemicals. It is recognized, however, that a full understanding and appreciation of so complex a group of compounds ideally begins in our teaching institutions. We, who are concerned with the continued education of the graduate practitioner, therefore hope that this brief discussion will encourage greater emphasis on pesticides among those of you who are responsible for the undergraduate pharmacy curriculum.

Vertebrate Physiology–Its Importance as a Pre-Requisite to the Proper Understanding Of Pharmacology*

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Physiology may be defined as that science which is concerned with the normal functions of living cells, tissues, organ systems,

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and bodies. In some cases the scope may be increased to touch upon pathology — a study of functional disturbance or deviation from the normal line of activity, and generally caused by some external change. Proper function must first be appreciated in order that one may then fathom the nature of the pathological change. Similarity, a study of pharmacology would necessitate a prerequisite knowledge of normal functional activity. Pharmacology entails a study of the action of drugs upon living tissues (cells). This study may be accomplished in two ways: (1) by a difficult commitment to memory of a vast multitude of factual information concerning specific actions of each agent upon specific organs or tissue systems, or, (2) by an adequate appreciation of physiological function and application of the basic type of activity displayed by the drug in question. This second approach would indicate that a study of pharmacology is an application of physiological principles, and it seems that it is the attitude which has gained favor with the advancement of knowledge concerning proper therapeutic measures.

History reveals that the first method of study of pharmacology was prevalent before sufficient knowledge concerning physiological function was available. Employment of magic in Babylonian practices gave way to more positive measures, but the mystery remained. Thus, liver was used in treatment of nightblindness by early Egyptians, and the Greeks knew that goiter might be alleviated by use of dried sea weed. The underlying disfunction—lack of rhodopsin precursors in nightblindness or failure to assimilate iodine in the thyroglobulin secretion—was not recognized. In more recent times, arsenicals have been used in treatment of spirochete infections and mercurials as antiseptic agents, but only with an understanding of the action of these metals upon cytoplasmic components can a logical organization of known facts be accomplished. Knowing that sulfhydril groupings are of great importance in cellular metabolism, one might then quite clearly see the way in which these materials may be effective. If one follows the development trend, it becomes more evident that mysticism has given way to use of proven medicinal agents (animal and vegetable) and in more recent times drug agents have been sought which may function in correction or alteration of a single physiological process.

Let us see how, in a few limited cases, an adequate knowledge of physiology may give to the student a means of intelligently undertaking a study in pharmacology.

A multitude of various materials has been used to produce altered activity of internal organs. Let us consider the manner in which a single structure, the heart, may be affected by various drug agents. Choline derivatives may generally slow or stop the beat of the heart, providing, of course, that their molecular configuration is sufficiently similar to that of the neurhormone acetyl choline. The physiologist recognizes this fact and by application of the knowledge of physiological function he may understand an observation, and may in some cases anticipate with success the action of a new derivative upon, not only the heart, but other body functions. Students in pharmacology may be told that epinephrine, in very small doses, may be used successfully to correct failing cardiac activity, but will they properly appreciate the full scope of the action without knowing that adrenalin is a normal product of definite cellular function? Furthermore, is not the student in danger of gross confusion if he is told that the same epinephrine may inhibit other body functions, and furthermore may even bring about vasodilation in certain areas, although he may generally have associated a relaxation of smooth muscle in arterioles with a lowering of blood pressure (i.e., nitrites, pilocarpine)? If he hasn't an appreciation of physiological activity, then how can he succeed in pharmacology except by memorization of specific action?

In the same light, we may examine the actions of pilocarpine, eserine, and atropine. The first two may be shown to slow the heart in frogs or turtles used frequently in classroom demonstrations; a single, simple observation which is easily understood by the student. Confusion may result when, in an intact mammal, pilocarpine may cause an increase in heart rate. How much easier it will be to understand this with an adequate knowledge of components of autonomic pathways and vegetative function! Conversely, atropine will speed the heart, even if the other two agents may have been applied previously, and it does this in very small dosage. But again, pilocarpine is ineffective against atropine action, while eserine may be employed as an antidote in atropine

poisoning. Add to this simple series of observations, the actions of these agents upon respiratory structures, gastro-intestinal activity—both mechanical and secretional, sphincter action and even striated muscle response and the student who has not been properly indocrinated by a study of physiology has a mass of unrelated information.

On the other hand, teach the student the intricacies of the autonomic nervous system, its overlapping cholinergic and adrenergic fibers in its two divisions, and the *purpose* of each division in carrying out vegetative or emergency activation, and drug action at once begins to follow a more and more orderly or purposeful pathway. Tell a trained physiologist of the site and mode of action of a drug upon autonomic structure or innervation, and he can predict the majority of observable effects in the body upon administration of that substance.

Another example of a field in which drug agents may vary in their relative value is that involving corrective medication of the various anemias. Until more recent times, and with the discovery of the anti-anemic and intrinsic factors the only treatment for anemias was administration of iron, perhaps supplemented by small amounts of copper, and supervision of the diet to assure content of proper amounts of animal protein. Since the discovery of the need of an intrinsic factor by Minot and Murphy in 1926, much attention has been directed to the augmentation of physiological processes in treatment of pernicious anemia. It may be simple to explain to a student the value of increased iron intake in treatment of certain cases of anemia. "But, why does the picture become complicated in certain cases," the same student may ask, "and why is iron of no value?" The student must merely be told, if he lacks a proper physiological background, that in certain cases of anemia other materials are more desirable or actually essential. If the student consults the literature, he is confronted with names of a number of seeminly unrelated materials used in the treatment of pernicious anemia: folic acid, of limited value, and the more powerful agent, vitamin B_{12} and its related products, the erythropoetic factor or chick growth factor. If he has been given an understanding of interference with interaction of extrinsic and intrinsic factors to form the anti-anemic factor, then

he may understanad the relative values of iron, protein, folic acid, desiccated stomach, liver extract, or vitamin B_{12} medication.

A course in pharmacology, if it were to meet the modern requirements of students, would certainly carry a resumé of the actions of the various vitamins. Perhaps in no other matter may a background in physiology be more essential. All vitamin deficiency symptoms may be related to an alteration from the normal course of physiological actions of the cell. A good example is polyneuritis, a condition in which nervous tissue may be severely injured by an accumulation of incompletely metabolized carbohydrate. The underlying cause, lack of thiamin for cocarboxylase activity, would be meaningless if physiological function had been neglected in the student's preparation. Another example of the fashion in which our knowledge has advanced so that pharmacological actions are closely related to basic function is the requirement in proper night vision of the co-existence of vitamin A and niacin. The action of liver (vitamin A) was recognized in ancient times for treatment of nightblindness; this was mentioned previously. Without prerequisite physiological training, a course in pharmacology can offer little more in the way of information than that which has been known for centuries. The understanding of vitamin A function in the rhodopsin cycle of the rod structures in the retina, and the action of niacin (in coenzyme I) in the reversible retinenerhodopsin reaction, must necessarily be avoided, and so complete instruction cannot be offered.

Finally, it must be recognized, and the author is willing to admit, that training may be given in pharmacology without ability on the part of the recipient to make proper physiological evaluation of the demonstrated phenomena which is the desired objective of the course. Without exaggeration, this stand may be similar to instructing a "mechanic" in the proper use of a set of wrenches and then letting him use his skill in attempted repair of a fine piece of machinery. Certainly, the mechanism in the intelligent use of pharmacological agents, the living body, is equally precious. If pharmacological education is to keep pace with modern knowledge in the field, a proper background in physiology should be a requirement of all our pharmacy students.

Human Physiology–Its Importance as a Pre-Requisite to the Proper Understanding of Pharmacology*

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To one who has been involved in the presentation of both courses, there is no question that a course in physiology is an absolute prerequisite to a course in pharmacology. Indeed, it is difficult to understand how a course in pharmacology can be given to students who do not have an adequate background in physiology.

To support my contention, I would like to discuss a few of the many aspects of the problem.

The first of these deals with the ability of the pharmacology student to understand the many terms encountered in the average pharmacology assignment, laboratory or textbook in character. In most courses in physiology, several hundred new terms are encountered and defined. In fact, it is necessary in administering some physiology courses to give separate examinations on terms alone. Typical examples of important terms are: bradycardia, tachycardia, auricular fibrillation, myocardium, coronary infarction and Purkinje fibers to mention a few terms relative to the heart. We might also point to such terms as—ganglion, basal nuclei, synapse, parasympathomimetic as typical of the terms defined in physiology and later of importance to the student of pharmacology. Countless other terms, important to various systems, could be enumerated.

In order to prove the value of a knowledge of terminology to the pharmacology student, the writer counted the number of terms met in a typical pharmacology textbook assignment. In an effort to be impartial in this evaluation, the writer counted the terms in three different pharmacology books. Subject matter on epinephrine was chosen as a typical assignment. The results were: Book A, 21 terms; Book B, 33 terms; Book C, 26 terms. To be

*Read before the Conference of Teachers of Biological Science at the 1951 meeting at Buffalo.

sure, the pharmacology student could, with the use of a good medical dictionary, master the terms in such an assignment. How much better, however, to have the knowledge of terminology mastered, at least to some extent, before beginning the course.

A second aspect deals with a proper understanding of the many systems of the human body. The physiology student learns the function of such important units of the body as the nervous, cardiovascular, excretory and endocrine systems, as well as many others. As all of us recognize, the nervous system alone, with its various divisions and widespread ramifications, offers a formidable challenge to the student of physiology. Yet, with proper instruction and study, the student can master some of the intricacies of this important body unit and later, apply this knowledge to other studies such as pharmacology. Let us examine a typical pharmacology laboratory assignment and see where a preliminary course in physiology would be of value.

Action of Drugs on the Circulation

Animal: Cat Weight: .....Kg.

Anesthetize a cat with 1.5 grams of Urethane (Ethyl Carbamate, U.S.P.) per Kilogram, given by stomach. Etherize before cutting the tissues if necessary.

Insert a tracheal cannula, so the etherization by means of the ether bottle may be employed as necessary during the experiment.

Expose the femoral vein, insert a cannula and connect the cannula by means of a piece of rubber tubing to a burette containing physiological salt solution (for making intravenous injections).

The oesophagus may be ligated to prevent emesis occurring.

Insert a carotid cannula and connect it with a mercury manometer using a 10% solution of sodium citrate between the mercury in the manometer and the blood in the carotid artery.

Dissect out both vagus nerves and place a loose ligature under each nerve.

Arrange kymograph for carotid blood pressure tracing. Make a record of normal carotid blood pressure under uniform anesthetic conditions.

Then carry out the following proceedings:

(a) *Adrenalin*—Inject 0.05 cc. per Kilogram of a 1:10,000 solution by means of the femoral vein. Note effect on heart and blood pressure. Explain action.

(b) *Posterior Pituitary*—Inject 0.02 cc. per Kilogram of posterior pituitary solution (pituitrin). Make a continuous record for one minute and then make an interrupted record until recovery takes place. Explain action.

(c) *Veratrum and Vagus*—Inject slowly 0.4 cc. per Kilogram of a Tincture of Veratrum Viride, diluted 1:4. Watch tracing carefully during the injection. When the blood pressure shows a marked change, cut the two vagus nerves. Result? Explain effects produced.

(d) *Vagus*—Stimulate the peripheral end of the right vagus nerve and see if you can duplicate the action of veratrum by proper adjustment of the intensity of the electrical stimulus Explain.

(e) *Atropine and the Vagus*—Inject 0.2 mg. of atropine sulfate per Kilogram intravenously, using a 0.1% solution. Repeat peripheral electrical stimulation of the vagus nerve as in (d) Explain any difference in effect produced.

In carrying out the above experiment, the pharmacology student with a background in physiology has the advantages of understanding what took place and, indeed, anticipates what will take place. To be more specific, he can call on his knowledge of the physiology of the vagus nerve or thinking back to the time when he studied endocrine glands, he can foretell the activity of adrenalin. Sometime ago, the syllabus committee defined pharmacology as a study of the effects produced by drugs on the living organism and the mechanism whereby these effects are produced. Once again, I would like to point out that the physiology student is, or at least should be, in a better position to understand not the what happened but the how-did-it happen part of pharmacology

I admit that the teacher of pharmacology could adequately explain the physiological mechanisms involved or that access to a good physiology text would enable a student to understand the

mechanisms of activity. Far better, however, to have the pathway prepared beforehand, it makes for easier travel.

A third aspect of the problem involves an understanding of certain compensatory reflexes of the body. I refer to such reflex systems as the carotid sinus, the aortic depressor and the Hering-Breuer, to mention a few. These reflexes are considered in physiology courses and a working knowledge of them is vitally important in understanding the pharmacological action of many drugs.

To prove this point in a brief fashion, I would like to refer to the assignment on epinephrine that I referred to previously. In this assignment, reference is made to "compensatory reflexes evoked through the carotico-aortic presso-receptor system". Compensatory or buffer reflexes of this nature are discussed in physiology courses. I submit that the pharmacology student with a knowledge of physiology can understand such statements as "carotico-aortic presso-receptor system with little trouble. He is certainly in a better position to understand the textbook assignment than the student who finds the statement quite foreign. The latter student can, of course, consult a good reference book in physiology and "dig out" the necessary background information, or the pharmacology instructor can spend a few lectures in discussing things he feels necessary for proper understanding of the assignment.

In conclusion I am sure that the other members of this symposium will offer further reasons why a course in physiology should precede pharmacology. The importance of pharmacology is increasing with each advance in medicine. The retail pharmacist, the detail pharmacist, the hospital pharmacist, or the research pharmacist, all need as much knowledge of this subject as they can possibly master. It is my belief that a knowledge of human physiology is a necessary prerequisite to the understanding of pharmacology. Such knowledge should certainly make it easier for the instructor in pharmacology to make plain the effects of drugs on living tissue and the mechanisms by which these effects are induced.

Vertebrate Physiology–Its Importance to Students of Pharmacy

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It is a distinct pleasure and an honor to be a member of this symposium with Dr. Holck and Dr. Walsh discussing the topic "Vertebrate Physiology, Its Importance to Pharmacy Students." May I hasten to add that my remarks on this subject are predicated upon the thesis that the pharmacy student is vitally interested in his service to the medical and allied professions, and that his degree of interest is such that he has every ambition to make his prescription desk a fountainhead of knowledge pertaining to new products. In these challenging days, with the introduction of many new preparations whose basic pharmacologic actions are in many instances well understood, the average physician has a difficult task in trying to keep abreast of the latest developments in the field of therapeutics. His program is so busy that he frequently is unable to find time to read the essential literature dealing with important phases of a drug's action and its limitations in terms of safety and efficacy. There are many alert pharmacists who have met this challenge to be of real assistance to the busy physician and to these conscientious pharmacists the physician is genuinely grateful.

In order to be of real assistance to the physician the pharmacist of today must have a keen appreciation of the complete pharmacology of modern drugs and such insight can be gained only on the solid background of basic physiologic principles. It is to certain of these principles pertaining specifically to the autonomic nervous system that I should like briefly to call your attention and with your permission I should like to cap my presentation with the following title:

"Side Reactions of Important Drugs Associated with Autonomic Imbalance"

The autonomic nervous system of a normal individual is in a constant state of balance; that is, its two important divisions, namely, the parasympathetic and the sympathetic, are constantly exerting their specific influences on certain dually innervated organs or tissues in order that normal function may be maintained at an optimum level. The heart, as you know, is controlled by the vagus nerve whose function is to slow the heart and this function is antagonized by the accelerator duties of the true sympathetic accelerator nerve. As long as these nerve forces are working optimally and at their normal degree, one's average heart rate will approximate 72 per minute, but if for some reason either one of these neural influences be altered or interrupted then either a profound bradycardia or an intense degree of tachycardia may result with their associated hazardous sequelae of side reactions and symptoms of disturbance.

There are numerous conditions associated with imbalance of the autonomic nervous system, and the following are reflections of true *sympathetic predominance*:

Peripheral vascular disease
Acrocyanosis
Acute ischemia (polio)
Arterio-obliterans
Causalgias
Diabetic gangrene
Dysmenorrhea
Endarteritis
Frostbite
Herpes zoster
Livedo reticularis
Lymphedema
Popliteal aneurysm and embolism
Post-herpetic neuralgias
Post-traumatic edema
Raynaud's syndrome
Scleroderma
Thrombo-angiitis obliterans
Thrombophlebitis
Trench and immersion foot
Cerebral "accidents"
Thrombotic and vasospastic Hypertension

Since the conditions enumerated reflect excessive sympathetic vasoconstrictor activity, it would seem obvious that any procedure, medical or surgical, which would interrupt the impulses traversing these sympathetic nerves, might be highly desirable. It therefore becomes important to the pharmacist as well as the physician that certain chemical compounds or drugs may act as insulators of a blood vessel, for example, against its own sympathetic nerve con-

trol. These drugs can be classified according to their types of action, which, as you recall from the presentation by Dr. Walsh, include such terms as cholinergics and anticholinergics, adrenergic and anti-adrenergic agents, or better still, perhaps adrenolytic and sympatholytic compounds. Then, too, there are ganglionic blocking agents which block nerve impulses at the synapse between pre- and post-ganglionic fibers in the autonomic nervous system. Examples of the latter include such drugs as Etamon, C_6 or hexamethonium; as illustrations of the former, peripheral blocking agents include atropine as an antagonist of parasympathetic or cholinergic activity, and as anti-adrenergic or adrenolytic and sympatholytic agents, one can include some of the new dihydroergot preparations, Priscoline, Regitine, and many others. It is therefore highly important that the pharmacist, like the physician, knows the basic mechanism of the drug under consideration, not only because of the therapeutic advantages gained by its use, but also because of the important side reactions which it may elicit simultaneously and for which the physician hastily seeks the appropriate antidote.

May I cite but a few examples of important drugs whose side reactions are frequently associated with exacerbation of certain autonomic functions and the correction of which necessitates the employment of antagonists which likewise act upon some phase of the autonomic nervous system. For example, in the treatment of myasthenia gravis, Prostigmine has been used during the last decade or two for its ability to enhance skeletal muscular power, apparently by dampening the activity of an ezyme, cholinesterase (whose function is to degrade or break up acetylcholine at the neuro-skeletal muscular junction), thus permitting an abundance of acetylcholine to carry out its normal function of transmission of nerve impulses from the spinal nerve-ending to the muscle controlled by that nerve. Prostigmine by the same mechanism, however, permits an abundance of acetylcholine to accumulate and function along the entire digestive tract, resulting in violent cramps and peristalsis because of its prominent cholinergic action. Therefore, it soon became necessary to adminster atropine with each dose of Prostigmine because of atropine's strong anticholinergic activity. Fortunately for the patient, atropine, while alleviating or negating the action of Prostigmine on the digestive tract, does not

interfere with Prostigmine's important action at the myoneural junction in these skeletal muscles. Why this variance? The complete answer is difficult, but of life-saving value to the patient afflicted with myasthenia gravis. How important it is to the pharmacist to have this essential information available for the inquiring physician, and how gratifying in terms of the successful employment of such information for the purpose of establishing still greater confidence of the physician in the capacity of his pharmacist.

Knowledge of the autonomic nervous system becomes important when dealing with drugs for the treatment of asthma. Epinephrine, as we all know is very effectitve in the treatment of the acute attack of bronchial asthma, but its use is almost invariably associated with some degree of tachycardia, which in many instances, is highly objectionable to the patient. Epinephrine administered in oil for more enduring action may likewise be associated with some degree of undesirable tachycardia. For this reason, ephedrine early came into use as one of many substitutes for epinephrine in this condition. To be sure, the degree of tachycardia was frequently much less serious than after epinephrine, but in certain patients the central stimulating or analeptic effect of the drug was so serious as to produce marked degrees of insomnia, hence the combined use of phenobarbital or other sedatives, which not only minimized or erased the undesirable insomnia, but in many cases also enhanced the relaxing effect of ephedrine on the bronchial musculature, probably through the dampening of some central neural autonomic outflow along the affected vagus nerve to the muscle. Today many important mixtures of drugs for the treatment of bronchial asthma can be justified on the basis of individual or combined pharmacologic activities; such a preparation as Tedral (containing theophylline, ephedrine and phenobarbital) and many preparations like it serve as good illustrations of mixed therapy.

Another modern illustration of a drug which affects the autonomic nervous system is that of Priscoline. Although it is a vasodilator because of its histaminic and its antisympathetic actions,

and therefore of value in such vascular spastic conditions as Raynaud's, thrombophlebitis, etc., it can elicit certain undesirable side reactions because of its simultaneous activity on the parasympathetic nervous system. It behaves like certain cholinergic agents in reference to the gastrointestinal tract in some individuals; it may produce gastric hypersecretion and gastrointestinal hypermotility and as in the case of Prostigmine, this action can be antagonized by such a strong anticholinergic agent as atropine or some of the new synthetic antispasmodics.

Still another example concerns a drug of which as yet very few of you people have learned but which in all probability should be available some time next year. It is known only by its serial number;* C-5968, and chemically is a hydrazinophthalazine derivative. Its chief action is to reduce blood pressure, apparently by some dampening of activity of the central nervous system, probably in the brain. In some patients, however, a very undesirable side-reaction is that of headache, which seems to be of the histamine type; this compound, if produced or released in the body, may result in widely dilated vessels in the brain. Fortunately these dilating effects can be counteracted by ergotamine tartrate (Gynergen) and by potent antihistaminic agents such as Benadryl, Dramamine, Pyribenzamine, etc. The fact that Gynergen corrects these headaches indicates that the blood vessels must be dilated as they are in migraine, a condition for which ergotamine tartrate seems to be most specific. Furthermore, the fact that antihistamines are of value in the alleviation or prevention of this type of headache would seem to offer further evidence that histamine may well be involved in the production of headaches associated with the administration of C-5968. It therefore becomes extremely important that the pharmacist be able to converse intelligently when one of his physicians calls him about the side reactions which may be associated by C-5968 in the treatment of certain types of hypertension.

*Trade name is Apresoline.

If the pharmacist can intelligently discuss the basic mechanism of 5968's action and also warn the physician as to the important side reactions which may ensue from such therapy, he is in the "driver's seat" so to speak, when his primary interest is to establish the confidence of his physicians in his art, so that the patient to whom he dispenses his prescription is the beneficiary of such combined intelligent approach and mutual interest.

May I close with an earnest appeal that you as teachers of pharmacy students become thoroughly inbued with the idea that the teaching of your students is not only a tremendous challenge but a real privilege and responsibility. There are obviously many technics of pedagogy, most of which can be justified if they satisfy one important criterion; namely, that the student be stimulated to do work "beyond the line of duty;" in other words, is he sufficiently interested to do extra work, extra reading, and extra experiments for the sake of becoming better qualified to serve his professional associates and his patients? We must all remember the true definition of a teacher, "an individual, trained or untrained, who does little teaching but inspires one to learn." This may be your epitaph if you but wish it.

Surely vertebrate physiology, and may I add, vertebrate pharmacology, become important disciplines in the curriculum of the modern pharmacy student. There is scarcely a drug prescribed which does not in some way affect either the autonomic nervous system, water and electrolytic balance, or the endocrine system, the three most important factors in the maintenance of status quo or good health.

What Emphasis Should Teachers of Pharmacognosy and Pharmacology Place Upon Prescription Specialties and Proprietaries?*

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It is the opinion of this speaker that the primary function of our colleges of pharmacy is to supply graduates who are safe and competent to practice retail pharmacy. Approximately seventy-five per cent of all new prescriptions are for single proprietary products and approximately eighty-five per cent of all new prescriptions call for a proprietary product plus other ingredients. These facts make it very clear that teachers should place great emphasis on this phase of the subject.

As a teacher of pharmacology I have stressed the importance of knowing as much as possible concerning the more important proprietary products. It is desirable for the student to know the trade name, the name of the manufacturer, the composition, the pharmacology and therapeutic uses, the dosage and type of packaging of each of these products.

Some of the chief objectives in a course in pharmacology are to teach the basic principles of how drugs act, their therapeutic uses, and the dosage commonly employed to obtain the desired effects. Since proprietaries and specialties are the most commonly prescribed products a thorough knowledge concerning these preparations really represents an end point or actual goal in our teaching. We want our graduates to be able to read intelligently and properly interpret the literature concerning new products as they appear on the market. I have found it to be very practical and of interest to the students to actually take a brochure concerning a new product and thoroughly discuss it with the class. Claims for the product are weighed against the actual experimental and clin-

*Read before the Conference of Teachers of Biological Sciences at the 1951 meeting at Buffalo.

ical data presented. In this way the student makes use of his basic knowledge of pharmacology and is taught to give critical appraisal of new products which will appear on the market long after he has graduated. This type of study of proprietaries will better enable him to talk intelligently with physicians when they need information concerning new proprietary products.

Principles concerning synergism, potentiation, and physiological antagonism may be emphasized in a practical manner by studying the composition of certain proprietaries. The student often has a greater appreciation of the significance of these mechanisms when he studies actual proprietary products containing drug combinations and is taught the reasons for the combinations involved.

Proper integration of proprietaries in the course in pharmacology enables us to emphasize undesirable side actions of a drug in such a way that the student will gain a better and more lasting appreciation of this phase of the study of drug actions and therapeutics. For instance, in discussing the drug eserine we point out its mode of action and explain its therapeutic limitations because of its undesirable side actions. We point out that atropine antagonizes many but not all of the actions of eserine. If we supplement this discussion with an explanation of the use and composition of the proprietaries Physotropin and Esertropin the student has a practical example and a greater appreciation of the principles we are trying to emphasize.

We must not overlook the fact that we should coordinate our teaching of pharmacology with other courses, especially the courses in dispensing pharmacy and organic chemistry. If we are to accomplish this coordination in an effective manner we must give considerable attention to proprietary products.

At the present time some ten to fifteen per cent of our graduates take positions as detail representatives with various pharmaceutical houses. In this type of work they must know about the products of other concerns as well as those they are detailing. Their need for a knowledge of proprietary products is just as great and possible greater than in the case of the student who will enter retail pharmacy.

From the above comments it is obvious that I believe great emphasis should be placed upon teaching all we can about the accepted and more important proprietaries and specialties. Our teaching of basic pharmacology should be thorough so that as our graduates have new proprietaries placed in their hands they can satisfactorily evaluate and appraise them. We can make use of many of these products to inspire our students and show them the practical value of pharmacology.

What Emphasis Should Teachers of Pharmacognosy Place Upon Prescription Specialties and Proprietaries?*

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In learning the fundamentals which pertain to plants and animals as chemical factories, a general objective of the pharmacognosy area, students are directed in the pertinent problems which involve the processing, isolation, and properties of raw drug materials and their active constituents. This subject forms the necessary background of knowledge which enables students to understand more fully the role of natural products as drugs and otherwise economic items. The subject has long dealt with the application of these products for therapeutic and certain non-therapeutic uses. It has often been a policy to place great emphasis in pharmacognosy upon drug substances and preparations of the U.S.P., N.F., and N.N.R. By adding certain prescription specialties and proprietaries to this emphasis, a very practical liaison or bridge is established between fundamental principles (chemical and physiological) in pharmacognosy and the applied knowledge learned in dispensing pharmacy.

*Read before the Teachers' Conference on Biological Sciences, A.A.C.P., Buffalo, New York, August 1951.

The recognized drug products of the pharmaceutical industry have advanced in numbers beyond those of Formulary and Pharmacopoeial scope and newer proprietaries and pharmaceutical specialties have in large measure replaced the importance of U.S.P. and N.F. titles in the language of the physician and pharmacist. With research development in competitive industries we may expect even more of this to be the rule. In order to keep in step with the importance of the specialty language even official nomenclature has sought to include manufacturers' trade names and chemical titles. Although in many cases the active constituents of specialty or proprietary items represent official drugs, this fact is often buried within the popular title of the product or the drug is often a simple modification of official natural or synthetic substances. But the fact remains that proprietaries and specialties are the everyday items of the pharmacists' routine and wherever possible students should become familiar with as many representative examples of these as is practical within the time allotted for each pharmaceutical course.

The major objective for including commercial items in pharmacognosy should be, I believe, to select those which can illustrate a modern application of the fundamentals that are discussed in the course. Often the use of proprietaries and specialties can be coordinated in this respect with official drugs and in such a way that students learn more forcibly the significance of basic principles such as raw drug procurement, processing, cost, and use; or the applications and importance of their purified constituents, how these are incorporated into currently used mixtures and for what purposes they serve. Many individual examples of drug synergism or antagonism are illustrated by the use of these preparations. Forms of use, standardizations, solutions, salts, and buffers, as these are used in specialty forms as well as U.S.P. and N.F. drugs for properly administrating preparations, are all practical aspects for rounding out the discussion of natural drug products. As a point for illustration, it would be very practical in pharmacognosy to show students relationships between specialty items such as Ledercillin (Lederle) and Pencillin USP, Digitora (Upjohn) and Digitalis USP, Crystodigin (Lilly) and Digitoxin USP, Cas-cvac (Parke Davis) and Cascara Extract USP, Metamucil (Searle) and

Psyllium NF, Petrolager (Wyeth) and Agar-agar USP, Cafergone (Sandoz) and Ergotamine USP, Oreton (Schering) and Testosterone USP, Premarin (Ayerst) and Conjugated Estrones, Acthar (Armour) and ACTH, etc., etc. These are but a small number of cases in point; there are hundreds of others equally as pertinent.

The purpose served by using proprietaries and specialties is a dynamic one for it impresses upon the student a need for understanding the fundamentals such as industrial research and production must routinely employ. It brings the student up to date with the drugs of the time and *it adds interest to the subject.*

As certain of these preparations are employed in teaching not only are fundamentals illustrated, but the names and uses of many are retained. Therefore, as they are also discussed in follow-up pharmacy courses, the student is able to comprehend them and in some cases to retain a knowledge of them as a result of continuous experience during his undergraduate career, rather than by memorization resulting from a single course which deals exclusively with them.

The fundamentals of pharmacognosy should be learned by this practice just as they are learned by the use of official preparations and other teaching aids. The names of several currently important proprietaries and specialties should be recognized. These should be associated with both chemical and physiological principles which they illustrate. Furthermore, the impact and general role of natural drug products in pharmaceutical industry, their production, research and literature, should be made available to the student. The student should understand more clearly the nature of preparations which he will dispense. His learning about certain of these in pharmacognosy will assist greatly as he is introduced to them again in pharmacology, pharmaceutical chemistry, and pharmacy courses. He will then recognize more of them as he begins his practice which obviously will deal to greater extent with these items.

Now the great problem which the instructor in pharmacognosy faces in utilizing proprietaries and specialties as teaching aids is how many to select and precisely what information about each should be learned. As has already been stated, the selection of certain of these should be based upon the fundamental informa-

tion which they illustrate and upon their current importance. But there should be a limit in the numbers which need to be employed for this purpose. It would be just as fallacious to cover too many as it would be to omit the discussion of proprietaries and specialties entirely. It should be remembered that unlike most preparations of the USP and NF these items often change in importance overnight. Furthermore, their popularity among physicians and the laiety is flexible and in many instances governed by commercial promotion. It is difficult to predict when the popularity of a commercial name will wane and it is also difficult to limit the selection from the vast number that can be used. But there must be a limitation in numbers.

The time needed in the general pharmacognosy course for giving instruction in fundamental and applied knowledge in areas other than drug preparations is already greatly limited. Therefore, no attempt should be made to include more than a partial number of commercial products as they can be utilized in each. This procedure is similarly followed in the case of official preparations. It might be advisable in many instances to substitute specialty preparations for some official preparations. But in pharmacognosy, *the emphasis of selection and numbers should be upon the role of the natural drug product in the preparation and not the preparation as such*. The factor of numbers is not really important as long as time spent in them does not detract from that devoted to the fundamental subject matter of the course.

When employing proprietary or specialty products to illustrate a phase in pharmacognosy, I do not believe that students should be required to learn by rote memory the many facts peculiar to the item itself. For example, there would be no point in requiring the memorization of specialty forms, contents, administration, and doses. These aspects can be learned later for each item as the pharmacist actually dispenses specialty preparations in his practice. In fact, I do not favor forcing students to learn manufacturers' names for each product, I believe it possible for students to learn the names of a few specialties which illustrate the use of more important natural products just as they learn a limited number of official preparations for this purpose. But, again, if these cannot

be mastered by the popular and fundamental aspects which the instructor must elucidate about each, there is nothing gained by requiring learning by memorization alone.

If a proprietary or specialty drug is discussed simultaneously with the physiological and chemical aspects of natural drug products and their constituents, the factors of standardization, administration and dosage fundamental to the parent substance will naturally follow with the specialty. But the emphasis in pharmacognosy should be placed upon the parent substance and not upon its commercial form. If thorough emphasis is placed on specialty name derivation and significance then often these can be learned without subjecting students to the mechanics of memorization.

If a convenient number of commercial packages can be displayed in the pharmacognosy laboratory or lecture, students will handle these products and by actual contact with them learn about them. As a result of such experience manufacturers' names and trade marks can be more conveniently learned. But the learning of proprietary and specialty names, contents, and manufacturers must come from repeated handling of them and not from a casual reference to them in a single course. The experiences of the undergraduate student in this respect are limited. But he can gain an introduction to many commercial items during his student career. He can surely become familiar with the commercial language.

In order to provide for adequately using commercial preparations for classroom purposes many instructors accumulate extensive sets of many specialties. These can be organized according to several methods, alphabetical, therapeutic, according to manufacturers' names, chemical contents, etc. Although model pharmacies are frequently available wherein products of all commercial kinds are stocked for student and faculty instructional use, it is often more practical for instructors to maintain separate collections. In the latter case, the collection can be arranged according to the course content in pharmacognosy. In fact, proprietary and specialty products and literature pertaining to each can be placed in the laboratory along with other conventional pharmacognosy teaching

materials. In this way they can be displayed in a manner most valuable to the course content.

More frequently references can be made to an item as the instructor and students have need to employ it. Literature brochures when distributed to the class have excellent value and assigned readings of these and other references, i.e. Howard's Modern Drug Encyclopedia and its supplements bring the student closer to the applied aspects of the subject. Certainly the limited numbers that can be so handled in pharmacognosy will contribute immensely to the student's use of them in other courses and eventually in retail pharmacy.

In conclusion, there are many objectives to be gained by including proprietary and specialty type preparations in the general course of pharmacognosy. These, if selected wisely and according to the fundamental aspects of the course, bring the student up to date with current trends and uses of natural drug products. They present the student with more applied aspects of the subject and enable him to understand clearly the need to learn the fundamentals. Thus, the course becomes more dynamic and interesting.

These items should be selected according to the importance of their contents and popular use. But the numbers employed in pharmacognosy should be secondary to other fundamental subject matter of this course. The memorization of a commercial product per se should be discouraged, but its significance in pharmacy and industry should be learned through repeated handling and literature reading. Laboratory and lecture displays which include these preparations will contribute greatly to this learning. A closer contact can be made between the pharmacognosy teacher and the practicing pharmacist or medical service representattive as the teacher seeks to obtain from these persons a wise selection of prescription proprietary and specialty products for the pharmacognosy course.

Reports of Officers, Committees and Delegates of the American Association of Colleges of Pharmacy at the 1951 Meeting at Buffalo*

Report of the Committee on Personnel Problems

Under a new chairmanship the work of this committee has been limited during the past year to a survey of the projects which might come within its scope.

It is interesting that the first report of this committee was given exactly ten years ago. Representatives from the American Pharmaceutical Association, National Association of Boards of Pharmacy, and National Association of Retail Druggists were included in the group. The committee was "charged with the study of certain aspects of drug store personnel problems", such as working hours, rates of remuneration, provisions for "days off" and vacation periods, and membership in labor organizations. A year later the war had interfered with normal conditions, and the committee assumed inactive status.

In 1947, the Committee on Personnel Problems was reactivated as a standing committee in the Association of Colleges of Pharmacy. The report gave extensive data obtained through the Pharmaceutical Survey concerning pharmacy faculties as to degrees obtained, salaries, provisions for sabbatical leave, and staff tenure.

Recent reports have repeatedly called attention to the shortage of teachers for schools of pharmacy and the need for a directory of pharmacy teachers.

*Continued from page 590 of the October 1951 issue.

It is apparent from this brief history that the scope of personnel prolems is extremely broad.

The following list shows projects which have been considered worthy of study. In many instances the interest of this committee is shared by other committees within the A.A.C.P.

(1) **Directory of pharmacy teachers.** This proposal has been designated by the Executive Committee as one of the worthy projects for which funds are not available. With sufficient volunteer labor this work could be completed with two hundred dollars for materials and postage. Unfortunately, the directory would require frequent revisions.

(2) **Resurvey of pharmacy faculties** as to degree qualifications, salaries, provisions for sabbatical leave, and staff tenure. There have been many changes, particularly respecting salaries, since 1947.

(3) **Study of teaching loads.** It is not peculiar that this important topic was not included in the study of pharmacy faculties. No formula has been developed which enables the evaluation of the many factors involved in the total work of teaching. The development of such a formula would be a significant contribution to education. When this formula becomes available teaching loads may be surveyed to yield meaningful data.

(4) **Undergraduate personnel.** This project deals with the quantitative aspect of the optimum manpower supply of pharmacists. In the "Findings and Recommendations" of the Pharmaceutical Survey the importance of the problem was emphasized as Section 1.

The statistics of 1950 show the following numbers of population per active pharmacist:

1.	Washington (state)	676
	National Average	1,505
48.	West Virginia	3,959

This unbalanced distribution results in many evils such as unemployment and low salaries in one area and insufficient professional service in another, false generalized statements based on the top of the list leading to a poor standing for pharmacy students and pharmacists in respect to induction into service, etc. It seems timeby that educators become aware of their duty to the profession in *planning* the training of manpower to meet real calculated needs.

(5) **Graduate personnel.** In 1945 the late Dean DuMez published an excellent "Report on Need for Graduate Work in Pharmaceutical Subjects Prepared for the American Foundation for Pharmaceutical Education" (this journal, **9**, 363, 1945). This report showed the need for 460 new teachers in schools of pharmacy during the next ten

years. At that time there were only 85 graduate students in pharmaceutical subjects, and it was estimated that only twenty-five per cent would become teachers.

During the school year 1950-1951 there were 467 graduate students in schools of pharmacy. This is a great increase, but the many demands for specialized personnel indicate that there is an acute shortage of manpower in this field.

It is the opinion of this committee that the need for manpower with advanced training should be surveyed. The total need includes not only the completion of teaching staffs but also the needs in industry, government service, and elsewhere.

This committee will seek the advice of the Executive Committee on the desirability of understanding either or both of the manpower surveys during the coming year.

E. A. BRECHT, *Chairman*

Report of the Committee on Constitution and By-Laws

Three proposals to change the By-Laws of the American Association of Colleges of Pharmacy have been presented to the Association during the past year. Two of the proposals, which involve changes in qualifications for admission to, or membership in, the Association, were presented in writing at the Atlantic City meeting in 1950 and were presented to all member-colleges of the Association by mail under date of January 25, 1951, by the Chairman of the Executive Committee. Copies of that communication have been distributed at this session and are in your hands. This procedure having complied with the requirements of Article I, Section 12, of the By-Laws, these proposed changes are ready for vote on their adoption at this meeting. A two-thirds majority of all member-colleges voting is necessary for their adoption.

While the third proposal requires no advance notice in writing prior to the vote, attention was directed to it in the same communication of January 25, 1951, from the Chairman of the Executive Committee.

(Changes in, or additions to, the wording of the pertinent sections of the By-Laws currently in force are designated in this report by underlines.)

Proposal 1—To amend Article I, Section 6, of the By-Laws of the American Association of Colleges of Pharmacy to read as follows:

6. Curriculum and Degrees

a. Instruction shall be given within a period of not less than five full college years of at least thirty-two weeks each and shall be scheduled over a minimum of five days per week.

b. A college may, with the approval of the Association, be permitted to shorten this time provided additional work is done in a regularly organized summer session in an approved institution, and provided further that all the required hours have been completed.

c. The degree of Bachelor of Science (B.S.) or Bachelor of Science in Pharmacy (B.S. in Pharm.), and these degrees only may be given for the completion of the five-year course.

d. Those requirements shall be effective on and after July 1, 1956.

Proposal 2—To amend Article I, Section 12, of the By-Laws of the American Association of Colleges of Pharmacy to read as follows:

12. Changes in Qualifications for Membership.

No change in qualifications for admission to, or membership in the Association shall be made unless the same has been presented in writing to the Association at a regular annual meeting, and to the member-colleges of the Association by mail at leost four months prior to the votel on its adoption. Any such proposed change must be presented in the form and wording in which it is to be mailed to the member colleges and in which it is to be voted on at the subsequent meeting. A two-thirds majority of all member-colleges voting on the proposed change is necessary for its adoption.

Proposal 3—To amend Article II of the By-Laws of the American Association of Colleges of Pharmacy to read as follows:

Article II. Fees and Dues. The annual dues for member-

ship in the Association, effective for the year 1951-52 and thereafter, shall be $200.00. A college applying for membership in the Association shall pay an application fee of $25.00, which shall accompany the application. No college shall be considered in good standing or entitled to vote unless all dues are paid, and a college which is in arrears for three years shall be dropped from membership.

LLOYD M. PARKS, *Chairman*

Report of the Committee on Predictive and Achievement Tests

The general picture of predictive testing in the American colleges of pharmacy during the period covered by this report was little different than that reported for the preceding year. Responses to a questionnaire distributed by this Committee, indicated that approximately the same percentage of colleges utilized test results as part of their criteria for admission as had done so in 1949-50. Furthermore, there appears to have been little change in opinion regarding predictive testing. The twenty-three colleges reporting employment of test results for admission purposes seem to believe firmly in their value, and some are doing an outstanding job. The other 36 colleges reporting appear to believe that their present methods of selection would not be materially improved by the employment of test results.

The increasing emphasis of pre-professional study appears to be influencing the thinking of many concerning predictitve testing. Almost invariably, those colleges which require pre-professional study indicate that they believe that the record made by the student during his pre-professional study is far superior to present predictive test results as a basis for selection. The Committee does not feel competent to discuss this matter and, therefore, simply reports it as an observation.

Perhaps reference should be made to an anomalous situation in the present membership of this Committee. Of the membership of the Committee, the majority are connected with institution which do not make use of predictive test results for the purpose of admission of students. This fact places the Committee in what amounts to an untenable position. It is suggested that, if the Committee is continued, its membership should be selected from among those who have had more intimate contact with predictive testing programs and who will, therefore, be in a better position to carry on the Committee's work.

E. L. CATALINE, *Chairman*

Report of the Committee on Emergency Problems

The extraordinary problems that have confronted the Association since our last convention have been handled expeditiously and well by the President, the Council and the Executive Committee, or by specially designated representattives. It was necessary for the Committee on Emergency Problems to meet but once.

At the request of President Schaefer a meeting was held on March 14, 1951, at the Columbia University College of Pharmacy. Messrs. Ballard, Bauer, Rowe, Muldoon, and President Schaefer attended. Non-member Robert P. Fischelis, Secretary of the American Pharmaceutical Association, was present by invitation.

Since our Association maintains no permanent representative in the Capital, Dr. Fischelis had on request during the year graciously and competently represented the AACP at various Washington conferences. The purpose of our meeting was to learn from him the then current status of students of pharmacy under the Draft, and what had been accomplished in the effort to obtain suitable consideration for them in setting up the basic law.

We hoped to discover ways in which our Committee could be of assistance to Dr. Fischelis or to the Association.

The Committee decided to undertake no program of its own at that time since little could be accomplished until the basic regulations had been determined. The AACP and the A.Ph.A. would continue to work in concert. The American Council on Education was handling effectively problems having to do with the deferment of students by local boards and on a national basis, and was studying ways of lightening future losses in student enrollment.

President Schaefer granted the Committee on Emergency Problems full authority to speak for the Association in emergency measures when Dr. Fischelis explained that it was likely that the Committee could be helpful in the future in supplying to him quickly information concerning the Association's views on acceleration, the proposed five-year curriculum, and any other questions that might require speedy answers. At times during the year Chairman Burt informed the members of the Committee as to the Association's stand on the adoption of accelerated programs, and on other matters related to student deferment and similar problems.

The Committee signified its willingness to assist Dr. Fischelis in preparing and checking a kit of information concerning pharmacy that had been requested by the War Manpower Commission. Since the Committee's meeting no request for information or help has been received.

HUGH C. MULDOON, *Chairman*

Report of Committee on Functions of the American Association of Colleges of Pharmacy

Activities and functions of any organization or group is very definitely dependent on the physical and financial facilities of the organization. Lack of both of these facilities has been emphasized time and time again throughout the more than half century the

American Association of Colleges of Pharmacy has been in existence. Activities of the Association have been depedent, for the most part, on "donated time" on the part of many individual members throughout the years, and as one reviews the history of the AACP he cannot help but be impressed with the quantity and quality of the work done.

During the past year the Executive Committee has given considerable study to the problem of adequate facilities for the Association. This is as it should be. The Executive Committee is the only group that understands in detail the many problems of the Association and thus knows of the limitations under which the Association must work. If funds can be made available to the Association a broader level of actitvity can be established. Until that time it seems reasonable that our efforts should be directed toward the improvement of these functions rather than to broaden the scope.

The general statement of purposes and functions presented a year ago by this committee appears to be adequate until the Association has facilities to spell each out in greater detail. It would seem unfortunate for the Association to assume a level of activity that it could not hope to accomplish.

To review these purposes and functions proposed they are again presented:

Purpose and Functions

1. To provide a center of cooperation at the intercollegiate level among schools and colleges of pharmacy for the promotion and improvement of pharmaceutical education and research.

2. To recommend investigative problems among schools and colleges of pharmacy such as: methods of teaching, equivalence of entrance qualifications and degrees, finance, selection of students, curricula and curriculum change, entrance qualifications, student health and welfare, professional competence, academic freedom.

3. Participate in regional conferences on problems confronting the profession of pharmacy and especially pharmaceutical education.

4. To recommend and advise concerning graduate study in schools and colleges of pharmacy.

5. To promote mutual understanding among schools and colleges of pharmacy.

6. To study academic problems of member institutions and to assist them in the realization of their objectives.

In order to achieve these purposes the Association will:

(a) Establish an office for the accumulating of records, information and other data pertaining to the activities of the Association and to function as a liaison between the AACP and other educational organizations and between the AACP and other organizations in the field of pharmacy.

(b) Undertake investigations into institutional academic problems of pharmacy.

(c) Establish facilities for the distribution and exchange of laboratory materials, books and other equipment for study and research among member colleges.

(d) Make provisions for the dissemination of material regarding teahers, scholarships, fellowships, summer courses, teaching seminars staff vacancies, students, regulations affecting the profession and publications.

It is the hope of this Committee that the Executive Committee members will consider the above for future guidance and clarification of Association activities, and that this Committee be discharged.

A. H. UHL, *Chairman*

Report of the Committee on World Congress for Pharmaceutical Education

It was in 1945 that the Executive Committee of the American Association of Colleges of Pharmacy appointed a Committee for working on a World Congress for Pharmaceutical Education to be held in 1950 as a special feature of a celebration of the fiftieth anniversary of the Association. Informed of the plan of a Pharmaceutical World Congress to be convened in the United States on the occasion of the centenary of the American Pharmaceutical Association in 1952, the Executive Committee of the American Association of Colleges of Pharmacy decided on December 20, 1946 in favor of the integration of its special conference into the general World Congress to be arranged by the A.Ph.A.

It is understood that in consequence of this decision the A.A.C.P. Committee on World Congress for Pharmaceutical Education could not do anything until initial steps had been taken by the A.Ph.A. As you well know, we have emphasized this fact in all the committee reports since 1946. Throughout the years we did not succeed in receiving from the A.Ph.A. a definite statement with regard to the realization of the plan of a Pharmaceutical World Congress to be held in 1952. It was not until a few weeks ago, by letter of August 7th, that a renewed request for a definite statement was answered. This answer reads as follows:

> **"There will be no efforth to organize an international congress because inquiry has indicated that the time is not propitious for such a congress in 1952. It was pointed out that in order to have satisfactory foreign representation considerable sums of money would have to be raised to bring prominent people here since they are unable to get dollars to make the trip. . . . As for an international congress on pharmaceutical education, there are numerous reasons why this should be postponed, not the least of which is the present state of uncertainty of our American curriculum."**

The reasons given for the abandonment of the idea of a World Congress of Pharmacy in the United States in 1952 are naturally wide open to argumentation. It is by no means impossible that such a Congress would have been given financial support by one of the official and semi-official agencies created for the establishment of international intercourse, if approached in time and with the required definiteness of purpose. As to the "uncertainty of our American curriculum" as one of the main reasons for the postponement of a World Congress for Pharmaceutical Education, it could be argued that just this uncertainty could be considered as an important reason for instead of against an international discussion. Be that as it may, the decision of the Committee of the Council of the A.Ph.A. stands and writes the "finale" to all respective plans. It is for this reason that we suggest the dissolution of our committee by submitting the following resolution:

> **Whereas, the American Pharmaceutical Association has abandoned its plan of a Pharmaceutical World Congress to be held on the occasion of its centenary in 1952 in the frame of which the American Association of Colleges of Pharmacy was to arrange and direct a World Congress on Pharmaceutical Education, and**

Whereas by this decision of the American Pharmaceutical Association the Committee on World Congress for Pharmaceutical Education has lost its purpose;

Be it resolved, that the Committee be dissolved.

GEORGE URDANG, *Chairman.*

Report of the Committee on Teachers Conferences

All Teachers Conferences report very successful meetings with the largest attendance on record. The growing interest in and attendance at these meetings is an indication of their value to the teachers of pharmacy and the allied sciences. The Conference of Teachers of Pharmaceutical Economics has perhaps shown the most unusual growth by having registered an attendance this year of 57.

The following resolutions have been referred to this committee by the Teachers Conferences:

From the Conference of Teachers of Pharmacy,

"Be it Resolved that the Conference of Teachers of Pharmacy go on record as approving recommendcations that methods, procedures and techniques used in teaching pharmacy and methods of evaluating measurement of student progress conform to modern accepted objectives of pharmaceutical education."

Since this resolution is apparently directed to teachers of pharmacy the committee referred it back to the Conference of Teachers of Pharmacy.

From the Conference of Teachers of Pharmaceutical Economics

"Whereas the Joint Teachers Conference of the AACP has used the term 'Pharmacy Administration' in the By-Laws proposed for adoption at its annual meeting in 1951, and

Whereas the use of the term 'Pharmacy Administration' in describing the area formerly known as Pharmaceutical Economics, meets with the approval of the members of the Conference of Teachers of Pharmaceutical Economics (to be known as the Section on Pharmacy Administration under the proposed By-Laws),

Therefore, Be it Recommended to the American Council on Pharmaceutical Education that the term 'Pharmacy Administration' be used in the Proposed Accreditation Manual when referring to that area of pharmacy formerly known as 'Pharmaceutical Economics', or that area sometimes referred to as 'Pharmaceutical Administration'."

The committee endorses this resolution and recommends its adoption, together with a recommendation that it be forwarded by the Secretary of our Association to the American Council on Pharmaceutical Education.

All conferences have individually adopted the By-Laws proposed for Sections under the "Proposed By-Laws Regulating the Practices and Procedures of the Conference of Teachers of the American Association of Colleges of Pharmacy".

J. B. SPROWLS, *Chairman*

Report of the Committee on Libraries

Several months ago Dr. Elliott indicated to me that he had some suggestions for the Committee on Libraries but for various reasons the two of us did not find it convenient to get together to discuss the matter until recently.

On pages 17 and 18 of the forms which the Colleges of Pharmacy are expected to fill out in applying for accreditation is Form K-1 which has to do with libraries. Item 5 of this form reads as follows: "Does the college library contain the principal items of the library list prepared and published by the American Association of Colleges of Pharmacy? (American Journal of Pharmaceutical Education, Volume XIII, number 4, page 670) If not, indicate chief lacks." This list was reported at the Jacksonville meeting by this committee.

Dr. Elliott assured me that not only did the accrediting committee find this published list useful but that a number of the colleges had found it helpful also. For this and other reasons he

has made the following suggestions for consideration by the Committee on Libraries:

(1) That the list of books published in the Am. J. Pharm. Education Vol. 13, p. 670, be revised and brought up to date. It was Dr. Elliott's feeling that in revising it, two lists should be prepared, one for the undergraduate curriculum and a second one intended for the benefit of those schools offering graduate work. It was suggested that the titles in these lists should be selected with such care that they could be regarded as the minimum requirements for the libraries of those schools seeking accreditation.

(2) That because in any large list of titles, questions are often raised as to the reason for including certain books, a short statement be made as to the value and importance of the less well known items.

(3) That the journals regarded as being important to pharmacy be prepared in two lists as indicated above for books.

(4) That the committee give attention to the finding of ways and means by which students may be trained to use the library profitably.

(5) That the committee might profitably give attention to ways of carrying on library extension work for practicing pharmacists.

Here are five good suggestions for the committee to consider. The fifth, that of library extension, is a new idea. The other four have had our attention in one way or another for some time.

Concerning the making of two lists of books and journals it has never seemed to this committee to be easy to draw a sharp division between the source materials by those who turn to the library for help except that, perhaps, graduate students and teachers are likely to make more use of foreign books and journals than are the undergraduates. In compiling the lists of books and journals which, among other things, should serve the committee on accreditation, this committee seeks the advice and suggestions of every member of the Association.

This committee has stated several times that it is one thing to have a library, but quite another problem to have it used by students. The means by which students may be trained to make use of the library are problems for the librarians, and the professors to work out. As in the laboratory, so in the library one learns to do by doing. Students may be told about call numbers, card catalogs, astract journals, etc., but that all means little until they make use of these tools. Library manuals may be helpful. The pharmacy librarian at Purdue, in cooperation with the professor in charge of the course, has prepared a mimeographed manual for

use by the students in manufacturing pharmacy. It aids the student in preparing a properly documented term report of considerable length upon some topic appropriate for the course. Even so, it is necessary for the librarian and the instructor to personally help the student with the many details involved in doing a good job of library research. Although primarily intended for the undergraduates, this manual is complete enough to serve the graduate students majoring in pharmacy.

Concerning the problem of library extension for pharmacists, Dr. Elliott suggested that short reading lists might be sent out at stated intervals which should be regarded as "must" reading for professional pharmacists. A way of encouraging professional improvement through self study. This, after a fashion, is what manufacturers attempt to do with their house organs.

Pharmacy Librarians of the Medical Library Association

The pharmacy librarians o fthe M.L.A. are a small but active group of librarians from our colleges of pharmacy and from a number of the pharmaceutical manufacturers. The M.L.A. has recently appointed a committee from the pharmacy group on "Criteria and Standards for the Pharmaceutical Librarian and the Pharmacy Library". Miss Clara Robeson and Mrs. Barbara Cowles of the Massachusetts College of Pharmacy are to head this committee jointly. Those with questions or suggestions about this problem should feel free to address these librarians. This group of librarians is concerned, and correctly so, that the pharmacy libraries be in charge of persons trained in library science. The commitee on libraries is in agreement with this idea and believes that we should cooperate with the committee from the pharmacy group of the M.L.A. in an effort to find satisfactory solutions to our common problems, namely (A) library content, (B) library use, and (C) properly trained librarians.

Those schools interested in Institutional membership in the Medical Library Association should address Miss Esther Judkins, Librarian, Rockefeller Institute for Medical Research, 66th Street & York Avenue, New York, New York for proper application forms.

C. O. Lee, *Chairman*

Report of the Committee on Activities for Alumni

One of the chief problems confronting many of our colleges of pharmacy today is that of adequate financing. The need for broadening the base of financial support given to professional education is not restricted to pharmaceutical education alone. Educators in the field of medicine have the same problem. The Commission on Financing Higher Education in a report on financing the costs of medical education recently recommended, among other things, that gift income should be increased in part by contributions from physicians. The Commission warned that direct federal subsidies "would endanger the intellectual heritage of freedom and diversity which characterizes American higher education."

Pharmaceutical education, while not so expensive as that in medicine, is nonetheless more costly than the typical liberal arts program. The Pharmaceutical Survey described the inadequate financing of pharmaceutical education as one of our major problems. Since that time, costs have risen greatly until they are about twice that of the pre-war years. Today, many of our colleges, both public and private, are facing serious financial problems. These will be solved only by exploiting every possible means of financial support.

The Committee on Activities for Alumni, acting on the suggestion of President Schaefer, selected as its project this year a study of the prolem of alumni financial support and the most effective means of warranting and obtaining it. Each member college was asked to provide the Committee with its own attitude on this problem, what steps were being taken to obtain alumni gifts, and what success had been achieved. Some most informative letters were received by the Committee, and it was clearly evident that many of the colleges are keenly interested in this matter. Many expressed a desire for information which would help them to improve their program in obtaining additional alumni support. In order to provide the members of the A.A.C.P. with the interesting facts and valuable suggestions received, the Committee has attempted to summarize and condense the data in this report.

At the very outset it appeared that colleges of pharmacy may be divided into three large groups insofar as obtaining alumni support is concerned.

1—Colleges which are a part of a university system supported solely by state funds. Most of these are either restricted in asking for direct alumni support, or they prefer not to do so.

2—Colleges which are a part of a state-supported university system but which solicit and encourage alumni gifts.

3—Private institutions, often a part of a university system but which lean heavily upon gifts from alumni and friends.

Some of the institutions supported solely by state funds seemed to express almost an abhorrence of the very though of alumni gifts while others in this group simply felt it to be unnecessary. Institutions which have no need for financial aid are fortunate, but it is quite possible that alumni who help finance an institution identify themselves with it more intimately. At times this may result in an attempt to influence institutional policy unduly, but more often it has a wholesome effect on both college and alumni.

There is a wide variation in the degree of success attained by our various colleges which do attempt to solicit alumni support. Some colleges have succeeded in obtaining hundreds of thousands of dollars and by this means have been enabled to make vast improvements in their college facilities. As an example of what can be done by organized effort, we might cite one mid-western college of pharmacy which in three years has obtained sufficient cash gifts to pay completely for a new $750,000 building. Others report pitifully small or no alumni gifts even in spite of dire need.

The Need for Alumni Support

Reference has already been made to the inadequate financing of pharmaceutical education, and this is indeed the basic cause of many of our problems.

It is a well-established fact that tuition fees cannot be expected to cover the cost of educating the student. Unlike other enterprises the existence of a high potential market, namely students, does not insure the financial future of our colleges. Actually, if we provide proper facilities, the more graduates we produce—the greater is the deficit which must be made up by funds other than tuition fees.

In many institutions this is done by state appropriations, and this will undoubtedly continue to be a prime sources of revenue. With the tax burden caused by heavy federal spending, it may well be that some forced economy may become necessary at the state level thus putting pressure on the most secure state universities.

The amount of endowment necessary to provide an annual return sufficient to meet the deficit in operating costs is truly astronomical. One million dollars in safe investments cannot be expected to provide more than 40,000 dollars a year.

Federal subsidies while argued by many as the solution to our problem are fraught with danger. The majority of educators feel that with federal subsidy will come in time regimentation and the loss of academic freedom. With the current heavy defense spending, educational subsidies are not too likely in the near future.

The American Foundation for Pharmaceutical Education has been of considerable assistance to our colleges, but the aid which it has given falls far short of our needs. Several deans have expressed the opinion that the support given pharmaceutical education by the drug industry is not in proportion to its ability to render such support. This may well be true, but we must not look to industry alone for help. Dr. James E. Allen, Jr. of the New York State Education Department, in speaking on the problem of financing higher education, made these observations: "Too many institutions are still relying primarily on methods of appeal applicable to the 1920's and are closing their eyes to the current facts of life with respect to the distribution of our national wealth. The major problem today is how to interest a wider clientele. More individuals in the lower and middle income groups must be reached." . . . "More intensive efforts also can be made toward getting larger numbers of alumni to contribute annually."

While the need for buildings and equipment exists in many of our colleges, there is also the need for money to cover rising costs and deficits. Scholarship funds and research grants help little, if at all, in this direction since the money contributed goes either to a deserving student or is expended in conducting a research investigation. The serious need in many of our colleges is for funds toward capital investment and operating costs. In many cases alumni support is an almost untapped source of revenue waiting

for development. Our dean expressed himself as follows: "I am more optimistic about alumni support than of industrial even though amounts from individual graduates may be small."

The Organization of Alumni Support

Institutions receiving regular state appropriations often find it necessary to have their alumni influence the state legislature concerning the amount to be appropriated. This is a very important kind of alumni support since with it serious difficulty might have been experienced in a few states in times past. It is, therefore, highly desirable, even in these institutions, that the alumni be organized and made to feel that they occupy an important place in the university program.

Many colleges of pharmacy do not have their graduates organized into a separate alumni group and have no separate mailing list. The graduates are simply listed by the central alumni office of the university. While this plan is common, it prevents the intimate contact between the college and those alumni in the field of pharmacy. Other colleges, also a part of a university system, maintain an up-to-date mailing list of their own graduates in addition to, or in place of, that maintained by the central office. Such a plan is much better for many reasons. The colleges and their alumni have certain joint responsibilities. These can hardly be met unless each college can readily contact its graduates by mail. Several institutions include on their mailing list, former students who did not graduate. Strangely enough, some of these turn out to be even more loyal and more generous than many who did graduate.

A mailing list, by itself, does little good unless it is used. The practice of sending out some regular publication to the alumni is most valuable. Some institutions have a regular alumni bulletin. Others send to each graduate the publication of the college student branch of the A.Ph.A. These are greatly appreciated by those who receive them.

Seminar programs and extension courses have grown in number in recent years, and these do much to stimulate alumni loyalty and interest. It seems the obligation of our colleges to help their graduates meet the challenge of rapidly changing times and such help does not go unrewarded.

It is important that alumni be made to feel at home in the college. The faculty and the trustees should make every effort to be friendly in their contacts with visiting alumni. The aloofness, all too common among college teachers, can do irreparable damage even when no slight is intended. The more alumni can be interested in the current and future program of the college, the greater will be their willingness to support it generously.

An annual alumni banquet is very popular with alumni. In organizing these, one should capitalize on class spirit and have some member of each class help get his classmates out. Classes should be seated together at the banquet, and special emphasis should be placed on quinquennial reunions. One college, in particular, has had great success in awarding special certificates to alumni on their fiftieth anniversary of graduation.

After reviewing the success and failure of our member colleges obtaining financial support from their alumni, certain fundamental features seem necessary for any program if it is to have marked success. First and foremost there must be well-organized effort. It must also not be sporadic but on a continuing year-after-year basis. Results must be considered in terms of eventual return since effort expended today may bring great rewards ten or twenty years hence.

Mail contact, while important, does not and cannot take the place of personal contact. Professional solicitors are usually resented by alumni. The most effective solicitors are those who themselves are alumni and who are known to contribute. One excellent plan in use is to select a key man for each class and ask him to assume the responsibility of organizing his class for annual financial support or for some important project needed by the college. A scoreboard in terms of dollars given or a percent of the class contributing often acts as a stimulus. The concept of alumni annual "dues" is harmful rather than helpful. The alumni should be approached on the basis of an annual contribution and pledged if possible for a five year period, for example.

The ideal plan is to have some faculty member, active or retired, who is universally loved and respected, contact the alumni individually and explain the institution's program and needs. The full significance of the federal allowances for gifts can be ex-

plained also the various ways of setting up a memorial, making the college the beneficiary of insurance or a legatee discussed. We might cite the outstanding service in personal contact performed by the Rev. Henry W. Linn, S.J. of The Creighton University. Father Linn in the last six years has raised a total of well over two million dollars. In Father Linn's own words "Ninety-nine percent of the alumni I see make me feel that they are paying back something owed the University, rather than I am carrying a tin cup." Nothing can take the place of personal contact and long term planning if maximum results are to be achieved.

It is also important to set up a program with its own budget which can be increased as the returns increase. Too many colleges provide no funds for an alumni program, and it is small wonder that they have none.

A number of our member colleges have had conspicuous success in obtaining alumni support, but there are many others which have not. Your committee hopes that in this report on its studies the full significance of alumni support has been explained and some useful suggestions offered for obtaining it.

L. F. TICE, *Chairman*

Report of the Chairman of the Committee on Pharmaceutical Research

The importance of research is being increasingly recognized in all fields of human endeavor. If pharmacy is to advance, or even hold its place as a scientific profession, we must do all we can to foster research in our colleges of pharmacy.

Objectives of Pharmaceutical Research

The objectives of pharmaceutical research are to increase the knowledge of the fundamental principles on which the pharmaceutical sciences are based, to discover new facts and principles

dealing with the production, standardization and dispensing of drugs and to discover new drugs. In colleges of pharmacy there in an additional prime objective of training teachers and research workers in the pharmaceutical sciences.

What Can We Do?

Individual faculty members should strive to carry out whatever research is possible under the prevailing conditions of time and facilities. Even small research problems seeking the answer to questions which arise in teaching will promote a scholarly approach and may lead to important results.

Department heads and deans should make definite efforts to improve laboratory facilities and equipment for research, to allow time for research on the part of faculty members who show interest and ability, to secure a proper number of fellowships and research grants from industrial corporations and other organizations and to encourage research contracts with various government agencies. The intelligent cooperation of administrative officers is particularly needed in aiding the organization of cooperative research for problems whose scope icludes related fields such as chemistry, physics, biology, bacteriology, medicine and dentistry.

The present national situation is particularly favorable for the promotion of research contracts with government agencies and industrial corporations. Any decrease in enrollment in our colleges of pharmacy should be utilized to make more time of faculty members available for research.

WILLIAM J. HUSA, *Chairman*

Report of the Committee on Professional Relations

This Committee was inactive during the year because no task was assigned to it.

Since the year 1943-44 assignments were given to this Committee during one year only, 1949-50. Because this is a Special Committee the members feel that it should not be continued unless it is needed for a specific task. Therefore, we make the following recommendation:

That the Committee on Professional Relations be discontinued unless it is needed for a specific task.

P. A. FOOTE, *Chairman*

Report of the Committee on Graduate Study

This year the Committee on Graduate Study is making a progress report on a comprehensive study that was undertaken during the year 1950-1951. It has become increasingly evident in recent years that there is considerable variation among the many colleges of pharmacy in the manner in which graduate programs are administered. These variations make it difficult to evaluate the quantity as well as the quality of training that a graduate student may receive. This becomes particularly important when a graduate student transfers to another university or college to complete his education. It is also of interest to know in what areas a particular college or college staff is strongest. The Committee wanted to know if graduate programs were highly specialized or broad in character. It also desired to find out certain facts about each instructor. Is he a pharmacy trained man? Did he get his graduate degree under pharmacy or some other department or college? Has he continued to be productive in doing or directing research? Has he published papers, and, if so, how many? Several other points were also surveyed, such as: requirements for each of the degrees, and the number of graduate students in each particular field, (pharmacy, pharmaceutical chemistry, pharmacology, and pharmacognosy).

The Committee did not overlook the colleges not now offering graduate degrees. Certain information about the staff was sought since it is known that some instructors at these colleges continue to do some productive work.

All Deans of the colleges of pharmacy were presented with a questionnaire. The majority of these questionnaires were returned, but with evident misunderstandings as to what was wanted. The information supplied was such as to make a true picture of graduate study impossible. The misunderstandings arose, no doubt, because of the brevity of the questions. The Committee acknowledges its error and extends its apology. It is hoped that the Committee can continue its study and that the information it can gather will be of value and interest to all pharmacy educators and prospective graduate students.

In general, the information shows that graduate study in the colleges of pharmacy is very much on the up-grade both in quality and in quantity. There is evidence to show that pharmaceutical research is becoming more basic. This trend is a healthy sign.

The reports show considerable interest in the field of Pharmacy and in Pharmaceutical Chemistry, less interest in Pharmacology, and a dangerously low interest in Pharmacognosy.

On the basis of the information received, during the past ten years (1940-1950) there were 469 papers in Pharmaceutical Chemistry, 529 in Pharmacy, 378 in Pharmacology, and 107 in Pharmacognosy. These figures are low, since one of the colleges doing considerable graduate work did not return the questionnaire and many colleges not doing graduate work did not report papers. This same relative interest is shown by the number of graduate students in each of the four areas. Here again the pharmacognosy area shows low graduate interest with only twenty-eight students. Pharmaceutical Chemistry is still the most alluring area, Pharmacy second, and Pharmacology third.

The results show an interesting distribution among the instructors. Of the 196 Ph.D.'s on the staffs, 75, or approximately forty per cent are non-pharmacy trained. Of those holding only the M.S. degree, 49 out of 174 are non-pharmacy trained. These figures show that approximately thirty per cent of the graduate

instructors are non-pharmacy trained people. The committee has reason to doubt the validity of these figures.

Another interesting finding concerned the varied practice among the colleges on the accreditation of its graduate staff. Some colleges approved individuals for supervising M.S. degrees only and others for teaching graduate course but do not allow them to direct graduate work. Other colleges make no distinction as to what level an instructor may teach.

The Committee believes that this type of information would be of value if it can be obtained in a more accurate form and desires to continue its effort.

EARL P. GUTH, *Chairman*

Report of the A.A.C.P. Committee on Status of Pharmacists in Government Service

In a letter under date of June 18, 1951, President Schaefer requested that reports of committees be typewritten, clear, concise, and to the point. The report of your Committee on Status of Pharmacists in Government Service will comply precisely with this directive.

1. Your representatives on the General Committee on Status of Pharmacists in Government Service for 1950-51, were George DeKay, Noel E. Foss*, and Charles H. Rogers, Chairman.

2. Whenever called upon by Major Arthur T. Einbeck, Chairman of the General Committee, your representatives made every effort to cooperate with him and the Steering Committee in every way that it could to improve the status of pharmacists in every phase of Government Service.

3. Through the Steering Committee, your representatives have endeavored for a number of years to obtain regulations or legislation which would provide for commission status for all B.S. in Pharmacy graduates in every branch of the Government Service. To this end, we have made every effort and with some small degree of success.

*Dean Foss dissented to same opinion expressed in this report.

The Chairman of your Committee did not concur in the action of the Executive Committee of the Association in agreeing with a representative of the Department of the Air Force to solicit June, 1951, graduates to enlist in non-commission status provided they were assured of being assigned to pharmaceutical duties. The agreement provided that if a sufficient number of such enlistments could be obtained to take care of the needs of the Department of the Air Force, such Department would not establish technical training schools. It was acknowledged that the establishment of these technical training schools would not enhance formal pharmaceutical education. Also, it was recognized that all men in the Medical Service could not be commissioned officers and, furthermore, that it was necessary to obtain enlisted personnel from some source. Your Committee based its objections to the action upon the departure from our contention of long standing, viz., that B.S. in Pharmacy graduates should be commissioned officers in all branches of Government Service. However, certain facts about the immediate situation with which the Executive Committee was faced had not been given your Committee on Status of Pharmacists in Government Service. These, in brief, were:

1. **Many of our June, 1951 graduates had received notice from their drafts boards to report for physical examinations within 30 days.**

2. **That if drafted into the Service, they could not be assigned to duty in the Department of the Air Force, this regardless of their professional qualifications. In other words, if a young man wished to serve in the Air Force, he had to enlist in that branch of the Service and, if drafter, had no hope of being assigned to it.**

3. **That June, 1951, graduates who wanted to serve in the Air Force and were willing to make commitments to enlist immediately following graduation, would be screened for eligibility and grade determination which it was anticipated would result in the minimum grade of corporal or, in some instances, that of sergeant. Please bear in mind that these non-commissioned grades (according to a communication of May 8, 1951 were anticipated but not assured.**

4. **Furthermore, that almost immediate action on the part of the Executive Committee was necessary in order to postpone induction procedure by draft boards for these men.**

As stated before, these facts were not in the hands of your Committee and unquestionably put a different light on the matter, because, if a June graduate was willing to forego commissioned

status or take a chance on being assigned to pharmaceutical duties in the Army in order to serve in a professional capacity in the branch of the Service of his choice, the proposal of the Department of the Air Force opened the door and makes it possible. Therefore, we are of the opinion that the Executive Committee used good judgment in dealing with a matter that necessitated immediate action.

However, insofar as status in the Army is concerned, your Committee believes we should "stick to our guns", and keep up the fight for commission status for B.S. in Pharmacy men. This, because a large number of young men who have had one, two, or even three years of pharmaceutical or medical training who after a two or three months course of training designed especially to meet Service requirements, could qualify for these non-commissioned Medical Service Corps jobs. Furthermore, it is our opinion that the establishment of technical training schools will not jeopardize or in any way effect the formal training schools for general pharmaceutical civilian practice. On that point, there is a difference of opinion between Committees.

As of April 26, 1951, we were advised that 245 students were willing to enlist in the Department of the Air Force after graduation in June, whereas 333 were interested in obtaining more detailed information. We are advised that all of the former have been accepted and that most of them will be able to qualify for commissions within several months. We hope this will be true.

Your Committee feels that the Executive Committee acted in good faith and in the best interests of Pharmacy. We sincerely hope that your Committee for the coming year will continue to carry on the fight for recognition of all graduates with the B.S. in Pharmacy as commissioned officers. The status of pharmacists in all branches of the Government Service will be presented by Chairman Einbeck of the General Committee at a General Session of the A.Ph.A. and, therefore, any discussion of these phases of our work would only be repetitious.

CHARLES H. ROGERS, *Chairman*

Annual Report of the Joint Committee on the Status of Pharmacists in Government Service

This Committee is a joint one representing the American Pharmaceutical Association, the National Association of Retail Druggists, the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy. Its purpose is to advance the interest of the pharmacists in the various branches of the Armed Services and other Government Services, as well as pharmaceutical progress in those services. Its membership is comprised of the following:

Arthur H. Einbeck, Chairman—Dr. R. Blackwell Smith—Lloyd M. Parks
representing the American Pharmaceutical Association

Dr. John W. Dargavel—George H. Frates—Roger Lusby
representing the National Association of Retail Druggists

Dr. Charles Rogers—Dr. Noel Foss and Dr. Ralph Clark
representing the American Association of Colleges of Pharmacy

Col. F. Royce Franzoni—Dr. Robert L. Swain—Dr. J. Doyle Norris
representing the National Association of Boards of Pharmacy

The Korean situation with the pressure of selective service has created a greater interest in the Armed Services. Many requests by Pharmacists were made to the Committee for detailed information on the opportunities in the various services. These were taken care of to the best of our ability. The Chairman did not feel that the problem at present necessitated the expense of calling the entire Committee together. However, the Steering Committee, consisting of one member from each of the four organizations including Dr. Robert P. Fischelis met with the heads of the pharmacy services of the Army, Navy, Veterans Administration, Air Service and United States Public Health Service. This resulted in clarifying many of our problems and posed several others which will be covered as part of this report. The members of the Steering Committee are Chairman Einbeck, Mr. Frates, Dr. Foss, Colonel Franzoni and Dr. Fischelis.

The Veterans Administration

Mr. E. Burns Geiger, Chief Pharmacist of the Veterans Administration outlined briefly the progressive steps taken by his group. He stated there are 375 Pharmacists in V.A. The Veterans Administration has 116,000 beds of which 106,000 are occupied. The new Medical Director Admiral Joel T. Boone, is a staunch friend of pharmacy as evidenced by his tribute to the "unselfish cooperation and participation by all segments of organized pharmacy, in making possible the high calibre of medical care that now exists for veterans", this on the occasion of the 99th Annual Convention of the District of Columbia Pharmaceutical Association in June of this year. Over 750,000 prescriptions were filled last year by pharmacies in the home town medical service program. Chief Geiger urged greater cooperation by retail pharmacists in some states. The veterans of the Spanish American War, the Boxer Rebellion and Korea have been added to those who are entitled to benefits, thus expanding the possibilities of the home town pharmacy program of the V.A. Every effort is being made by V.A., Chief Geiger stated, to expand to the extent practicable, filling of prescriptions by home town pharmacists. Chief Geiger stated that where a dispensary is established giving medical and dental service it is also necessary to set up a pharmacy. It would be difficult to give good service without this addition. In all cases the Pharmacy is in charge of qualified pharmacists. Promotions in V.A. are governed by Civil Service Regulations and are therefore rather slow as compared to the armed services—but pay in each grade is gradually increased to certain established maximums. On being questioned as to whether or not the pharmacists in V.A. should be on a Corps status as are the physicians—dentists and nurses—Chief Geiger stated that the matter was controversial in the Department as to whether or not it is desirable. In response to query as to why the V.A. will not pay for Cortesone andACHT on prescriptions, Chief Geiger stated that it was merely a protective measure to V.A. patients, since they had their own regulations on the treatment of patients which must be under direct V.A. control until there is a greater experience with the drug. He stated that it was not set up as a discriminatory measure to the home town

pharmacist, since there are practically no other restrictions set up for other drugs prescribed by the home town physicians. There was some feeling expressed that this matter should be better publicized to the pharmacists as a whole since some State Association Secretaries are making inquiries on what they considered apparent discrimination. Some feeling was also expressed that many more prescriptions could be channeled to the home town pharmacies than are being done at the present time.

The Army

In discussing the present limitation of 2% Colonels—criticized by resolution at the 1950 Convention—Colonel O. P. Goriup, Chief of the Medical Service Corps stated that there were at the present time no restrictions on promotions. Since there are at the present time 9 full Colonels in the Regular Army MSC and that there are vacancies for some 8 more at this time. A bill to correct the limitation of Colonels is in the making. The lack of its introduction into Congress is not due to Army disinterest. Colonel Goriup mentioned the general lack of interest of pharmacists in the Army as a career. Of 250 applications for Regular Army Commissions there was not one pharmacist. He stated further that limitation of rank at present is no factor. The young man coming in as a Second Lieutenant is not giving too much thought to the problem of becoming a Colonel. The picture then is too far away. He has the intelligence, stated Colonel Goriup, to know that if there is discrimination, and there is to some extent, the situation will be corrected in the regular course of events. Of 15 graduates of the R.O.T.C. who were offered regular army commissions all refused. Opportunities in civil life seemed more lucrative and perhaps other personal problems motivated their decisions. Regarding extension of R.O.T.C. Colonel Goriup stated that none was contemplated. A pharmacy student attending a college that has any kind of an R.O.T.C. Unit should join it. As a pharmacy student he *may* go to pharmacy R.O.T.C. *if he so desires* as his summer training program, and upon graduation will be commissioned in the Medical Service Corps United States Army Reserve. The question was raised as to why a pharmacist should not be granted commissioned status solely on the basis of practicing professional pharmacy in

the Army. Colonel Goriup contended that such a policy would restrict the opportunities of the pharmacist to perform many useful services that many of the higher ranks might be denied to him because his work might be restricted to the dispensaries rather than the many positions in supply and administration that he presently fills in the service. Then again in peace time, it is difficult to obtain pharmacists for army dispensing functions. It is therefore necessary to operate a pharmacy technician training program. In time of National Emergency enough pharmacy graduates pharmacists are obtained to be assigned to duties as Pharmacists. All of these pharmacists who are officer material can become officers.

The Air Force

The Air Force, Medical Service Corps, a branch of the Armed Services created since the passage of the Medical Service Corps Law, was represented by Lt. Colonel Paul Larnce, MSC USAF who is in the Surgeon General's office of the Air Force. Col. Larnce, a pharmacist, stated that the Air Force organization does not follow the Army or Navy pattern. They do not for instance have the infantry-cavalry sort of designation of officers. Generally speaking the "Air Force" officer is commissioned in the Air Force and can be assigned to any function deemed desirable. As an exception, the Air Force recognizes the several corps in the Medical Service (Medical Corps, Dental Corps, Veterinary Corps, Medical Service Corps, Nurse Corps, Women's Medical Specialist Corps), the Corps of Chaplains, and the Judge Advocate General, and officers in these corps are on separate promotion lists and are accounted for separately. Medical Service Corps officers may be assigned any duty or responsibility within the Corps. At present there is no Chief of the Medical Service Corps. There are no sections of the Corps as currently organized. The Corps does operate on the philosophy that the pharmacist gets along better with doctors and understands their language better than many other people. Hence the Medical Service Corps of the Air Force looks to the pharmacist for the usual pharmacy assignments and many other supply and administrative assignments in the Corps rather than to lawyers, business administrators, and those having no educational or experience background in a science allied to medicine. There

are 22 Pharmacists in the Medical Service Corps of the Regular Air Force at the present time.

There is no pharmacist of field grade in charge of a pharmacy as his principle duty. Junior officers are placed in such assignments. Sufficient pharmacists are coming into the Air Force to man the pharmacies, precluding the necessity of opening a pharmacy technician school within the Air Force at this time. Upon being asked if he was familiar with the "Blue Print" furnished by the committee to General Kirk who was Surgeon General of the combined medical departments of the Air and Army, Colonel Larnce answered negatively but that he would be glad to study it. This "Blue Print", presented by the committee at the request of General Kirk on June 14, 1946, formed the basis of the responsibilities that would fall to the pharmacist in the then Pharmacy Corps and later to be incorporated in the responsibilities of the pharmacist in the Medical Service Corps which absorbed the Pharmacy Corps created by Congress through public law 130, 78th Congress in 1943. Colonel Larnce stated that it is the plan to have one, or in a few instances two, pharmacy officers in each hospital. The Air Force in addition to the Regular officers previously mentioned, has between 225 and 250 pharmacists of the Reserve on duty. Many of these were recently appointed in the Medical Service Corps upon graduation from schools at which they participated in the ROTC program. There are at present 215 officers in the Medical Service Corps of the regular Air Force. There are about 1400 Medical Service Corps officers of the Air Force Reserve on active duty. A copy of the original "Blue Print" submitted to the Army by this Committee has been sent to Colonel Larnce for his review.

The United States Public Health Service

Commander George R. Aschambault of the United States Public Health Service gave an interesting picture of the pharmacy service of that branch as well as its enlarged responsibilities. There are now 58 pharmacists as officers on active duty of which 38 are in the regular corps and 20 in the reserve corps. Mr. T. Foster, one of the older commissioned pharmacists of the Corps has recently been promoted to Director status which is equal to the rank

of Colonel in the Army or Captain in the Navy. There is one woman in commissioned status, Mrs. M. Gary, Chief, Pharmacy Service, at the Public Health Service Hospital at Norfolk, Virginia. One woman was lost during the year, choosing marriage as her primary pursuit. All pharmacists entering USPHS are of commissioned status. It was pointed out that the pharmacist in Public Health Service is commissioned because of the need for mobility and because of the varied duties he performs as a professional pharmacist in areas of hospital pharmacy, Foreign Quarantine inspection activities, research, and other activities. There are 9 pharmacists in the Service with the rank of Commander and 17 with the rank of Lieutenant Commander. One of these officers is doing research work in the field of pharmacology. Several are on duty as quarantine officers. One ranking officer, a pharmacist, is assigned to research in shellfish bacteriology. Pharmacists in the United States Public Health Service are being assigned to duty in the Federal prisons as hospital pharmacists, as well as at other installations.

There are at the present time 23 qualified pharmacists awaiting appointment. All of these took the more recent examinations in which some 600 pharmacists participated and 54 passed, representing some 33 of the accredited schools of pharmacy. The hospital pharmacy training program operated in connection with the Accredited Schools of Pharmacy is progressing nicely. In addition to the undergraduate program at the University of Washington (Seattle), the University of Maryland and the Service introduced a graduate hospital pharmacy program this past year at the United States Marine Hospital at Baltimore under the direction of Dr. J. Patrick and Dean Foss. Dr. Endicott of the United States Public Health Service will be at the Buffalo meeting of the colleges to discuss grants available to the colleges through the PHS. There is no over-all Pharmacy Section with a chief in the Public Health Service at the present time. Promotion to Lt. Commander grade is automatic. Higher grades are based on selection by a Board. Commander Archambault feels that the pharmacy service of the Public Health Service has been growing satisfactorily.

The Navy

Commander R. L. Taylor, MSC USN, Chief of Navy Pharmacy, stated that the Navy organization of the Medical Service Corps is not similar to the Army. Pharmacy Officers here are limited to pharmacy functions. Most ships are not large enough to have a pharmacy officer. However, there may ultimately be a pharmacy officer on a battleship. One of the problems here is officer space—ships hold just so many officer accommodations and space must take a second place to armament. Dispensing in the Navy in peace time, is usually done by Hospital Corps Technicians who receive a course run by a pharmacy officer. In war time when sufficient pharmacists are available, through the enlistment or selective service of graduate pharmacists, the technician schools are usually suspended. There are at present 22 commissioned pharmacists in the Regular Navy—40 Reserve Officers on active duty—there are approximately 59 billets that could be filled by pharmacy officers at present unfilled. Most of the officers are Ensigns—Junior Lieutenants and Senior Grade Lieutenants, a Lieutenant Commander and a Commander. We will probably have a Captain in 2 or 3 years. Pharmacy Technicians are no longer called pharmacists mates. They are called Hospital Corpsmen. There are a number of pharmacy officers now doing research—which is bound to increase the prestige and the service of pharmacy. There is no head of the Medical Service Corps in the Navy. There the pharmacists do not have supply and administration functions as does the Army. Promotional opportunities are not restricted except for the 2% limitations on Captains. There is no present provision for higher rank. About 10 percent of the Medical Service Corps are pharmacists. It was stated that a pharmacy officer would ultimately be assigned to every land based dispensary and hospital. The Surgeon General of the Navy contemplates that pharmacy as practiced in the Navy should be comparable with pharmacy as practiced in civil life.

Summary and Recommendations

The fact that we have so many of the heads of services at this and other pharmacy gatherings is an indication that we are continually making progress.

The Veterans Administration continues to be the group containing the largest number of pharmacists operating in a desirable status. Chief Burns Geiger continues at the head of the pharmaceutical section of V.A. and is making a substantial contribution by his excellent pharmaceutical leadership.

The Army pharmacy service has made some progress—there is greater evidence that pharmacy is being recognized since many reserve officers are being classified as pharmacy officers as their primary designation. While there has been no increase in the number of pharmacy R.O.T.C. Units and Colonel Goriup states that there is no likelihood that there will be, pharmacy students attending colleges that have R.O.T.C. may join those Units and at their own request attend pharmacy R.O.T.C. Units in the summer training program. This fact is evidently not sufficiently publicized since not too many pharmacists have taken advantage of this opportunity. There is some feeling that the reason many pharmacists do not take the opportunity to go into the regular army service because of the promotion limitation that still exists. There is also a feeling that the Tables of Organizations should provide for commissioned pharmacists to do the prescription work in the military pharmacies. While we have made a step in the right direction by having a pharmacy officer in charge of or be responsible for the operation of the pharmacy, there are reported instances that there are large pharmacies operated by non-commissioned officers and other enlisted men who are not pharmaceutically trained other than the Army Course for pharmacy technicians while the pharmaceutically trained officer who is primarily a Detachment Commander or holds some other important post is in charge does not appear in the pharmacy often enough to give it proper supervision.

We point out these things to show that while we are making steady progress under the leadership of Colonel Goriup, there are still objectives to be reached. It is the general practice during the present emergency to assign pharmacists to professional duties, we do find this to be the common practice, we do feel however that instead of serving in a subordinate capacity, that they be commissioned because of the professional duties that they perform.

Some of the problems discussed in the Army might also apply to the Air Service. There is evidence that there is a wholesome

desire on the part of the Surgeon General of the Air to cooperate with the profession of pharmacy. During the present emergency it was thought necessary to set up a pharmacy technician training program and some of the colleges were solicited as a training center. After conference it was shown that there would be sufficient pharmacists inducted or enlisted during the present emergency to cover the Air Force pharmacy installations. The next step would be to commission these men for the professional duties that they perform. There is a difference in the Air Force since they do not have a head of the Medical Service Corps—but like the Navy they have a pharmacist at the head of pharmacy service and Colonel Larnce is doing a particularly good job in that capacity. Like the Veterans Administration, the United States Public Health Service does use commissioned pharmacists in all pharmaceutical functions as well as using them in administrative and specialist capacities. It is a steadily growing service—of great popular appeal since it is one of the armed services and is attracting a high calibre of men. Under Commander Archambault who oversees this fine branch of government service it is growing steadily. Pharmacists in this Service have reached Director status which is equal to the military ranks of Colonel.

Commander R. L. Taylor followed Commander Briggs as head of the Pharmacy Section of the Medical Service Corps of the Navy. Our estimate is that this service is in capable hands and we should see some fine progress.

There are some limits in Navy Medical Service Corps Pharmacy Officers that we do not like, since they are evidently restricted to pharmacy service to a great degree and are not used in general administrative capacities such as the Army. This probably accounts for the fact that only 10% of the Medical Service Corps Officers of the Navy are pharmacists. Our general understanding at the creation of the Corps was that at least 20% of the officers of the Corps would be pharmacists. In fact the 20% figure was to be written in the original bill but it was deemed unnecessary because of the general understanding. We received a commitment from the then Surgeon General in a formal letter—that pharmacy officers would be utilized in the field of medical supply—standardization—testing—transportation of medical supplies

and certain administrative capacities. It was felt at the time that any limitation to pharmaceutical duties would restrict the opportunities for promotion and service of the pharmacist in the Navy. Because of this no special designation or insignia for the pharmacist was sought for or recommended by this committee. Copies of the letter received from the Surgeon General of the Navy were forwarded by the Committee to Commander Taylor for his study

A resolution should be offered commending Colonel Goriup, Commander Taylor, Colonel Larnce, Commander Archambault and Chief Geiger for the substantial gains that have been made during the year. Copies of the resolution should be sent to their respective chiefs.

The Committee should keep the problems of promotion, opportunities and higher pharmaceutical standards in its sights and press for legislative and administrative action where necessary. One of our members suggests a resolution as follows: Whereas, the profession of pharmacy now find their military career opportunities only within the Medical Service Corps of the Army, Navy and the Air Force of the United States; and whereas because discriminatory and suppressive restrictions that are applied to pharmacists as to highest rank has tended to discourage the members of this profession from seeking to practice their profession within our Armed Services, to the potentially dangerous condition where our Forces would not be able to enjoy the highest possible quality of practitioners; Therefore be it resolved that the A.Ph.A., the A.A.C.P., the N.A.B.P. and the N.A.R.D., through their combined committee do hereby strongly recommend to the Secrettary of Defense that due cognizance be taken of the effort upon our Armed Forces Medical Services—which limit promotion to the grade of Colonel or equivalent and the lack of provision for a General rank or equivalent and which restrict the number of persons promoted to this grade to a fraction of those allowed promotion in ther arms and services; and that corrective legislation be initiated in the Congress by the Secretary of Defense. It is felt that some such resolution would be helpful in focusing attention on this important problem. It is not impractical to conceive that the man who heads over a thousand officers in time of peace and many thousand in time of war should be of General rank and have some subordinates who

are also of General rank—and that the opportunities for full Colonel or its equivalent should be raised from the present 2% to the over-all Army average of 8%. Step by step we will eliminate these inequalities and largely because of the fine type of service that pharmacists are giving.

ARTHUR H. EINBECK, *Chairman*

Report of the Committee on Educational and Membership Standards

At the A.A.C.P. meeting held in Atlantic City in May 1950 the following recommendation of the Executive Committee was endorsed:

> **"As a temporary measure and pending further study and determination of policy, that on and after July 1, 1950, no student enrolling in a college of pharmacy with a background of pharmaceutical education from a foreign country (except Canada), shall be graduated from an accredited member college in less than two years of regular enrollment."**

Dr. Joseph Burt, Chairman of the Executive Committee of the A.A.C.P. requested that the Committee on Educational and Membership Standards study this problem and recommend a permanent policy for the consideration of the Association.

As background for consideration of a desirable policy the following current ruling of the New York State Educational Department is pertinent.

> **"Professional Education Requirements by Graduates of Foreign Pharmacy Schools with the exception of the University of Beirut and the University of Puerto Rico: The completion of at least two years of study satisfactory to both the College and the Board in an accredited school and the award of a degree by that school."**

It is noteworthy that the New York State Education Department ruling places graduates from Canadian Colleges of Pharmacy in the same category as those from foreign countries. This is due to

the fact that the standards in some of their schools differ considerably while at the University of Montreal the instruction is in the French language. The exclusion of the University of Beirut is by virtue of the fact that it is chartered by New York State and recognized by their Education Department.

The New York policy of the American Dental Association is in harmony with the recommendation of the Council on Dental Education. Dr. Shailer Peterson, Secretary of this Council, reports that they recommend that all dental schools require graduates of foreign dental schools to study a minimum of two additional years before being eligible to receive a dental degree. Furthermore the state examining boards require graduation from a dental school in this country with the exception of graduates from certain Canadian dental schools. A survey conducted by the Dental Council to determine the relative success in dental schools of the foreign graduates who had attended school in this country during a recent ten year period indicated that there were 461 students from 237 foreign dental schools. However, the distribution was so great that it was not possible to obtain very reliable information on many of the schools.

The tentative ruling adopted by the A.A.C.P. last year poses two major problems. First the question of interpreting the value of transcripts of students who have attended foreign pharmacy schools and second, the minimum period of residence to be required for those who are already graduates of foreign pharmacy schools. A third problem which must also be considered is the ability of the foreign student to read, write and speak English with enough proficiency to give assurance that he is prepared to do satisfactory work.

With respect to the evaluation and interpretation of foreign credentials an increasing number of our member colleges are using the skilled assistance offered by the Division of Comparative Education, United States Office of Education. In this Division regional experts are available to give expert evaluations of foreign credentials. However, the prospective students should not be informed that the evaluation came from the U. S. Office of Education in order to protect this Office from requests for re-evaluations in the case of disappointed students.

The requirement of a minimum of two years residence, involving a full schedule, appears to be a reasonable one for those students who are already graduates of a foreign pharmacy school. Some of our member schools may find it desirable to require the applicants to take examinations similar to those given their American students in order to place or enroll the foreign student at the proper educational level.

The problem of language comprehension is of major importance. If the prospective student is abroad it may be possible to get a statement as to his adequacy in English from the Department of English in the foreign university. In other situations it may be feasible to obtain such statement from the American Consul or Cultural Attache in the American Embassy in the foreign country.

In view of the foregoing considerations your Committee hereby recommends that the following resolution be adopted by the American Association of Colleges of Pharmacy:

> **Be it Resolved, that on and after July 1, 1952 member colleges of the American Association of Colleges of Pharmacy shall require a minimum enrollment period of two years before granting a degree to graduates of foreign pharmacy schools and such students must have attained proficiency in the use of the English language before being admitted to said schools.**

ARTHUR E. JAMES, *Chairman*

Report of the Committee on Audio-Visual Education

The Committee on Audio-Visual Education has devoted its time during 1950-51 to three major activities: (1) a compilation of titles of available and potential teaching films, (2) the preparation of a demonstration pharmacy-technique film to be presented at this meeting, (3) to consider ways by which the Association can pursue most effectively a meaningful program in audio-visual education.

Pharmacy and its ancillary fields embrace a broad spectrum of scientific and professional areas. Hence, in pharmaceutical education the effective use of teaching films must include the selection of items that come from areas seemingly remote from pharmacy. The Committee had been asked on a number of occasions what the potential of existing films might be in terms of numbers. Obviously, no one could make more than a mere approximation. The Committee, however, did feel that the Association might have some interest in a listing of films from as many sources as possible and therefore endeavored to obtain that information without wishing to convey the impression that the search was exhaustive. Appended, herewith, are listings of films according to the following classifications:

1. **Films available from pharmaceutical manufacturers;**
2. **Films produced to date in colleges of pharmacy;**
3. **Films of interest in pharmacognosy.**
4. **Films of pharmacologic interest;**
5. **Films of chemical interest, and**
6. **Film strips and miscellaneous.**

No attempt has been made to edit the titles to eliminate duplications. As one surveys these lists, he is impressed immediately by the large number from which a selection must be made. Although many films by title suggest a potential application to pharmaceutical education, it does not follow that they are suitable for such use. In reality, a listing of films is not sufficient data for a teacher when he desires to select a film for teaching needs. Only a resumé of that film describing not only the content, but also groups for which it is suitable, good and bad features, etc., provides adequate information. Such an evaluation should be written by someone familiar with the field to which a film is to be applied and with the applications of that field to pharmaceutical education. The Committee feels that in the not distant future the Association should consider seriously the need for a film evaluation program. Such a project, properly organized, administered and completed, would lend itself to periodic revisions without great expenditure of time and money. Pharmacy has for many generations been willing to use that which has been designed to meet specific needs of other groups. Certainly a film evaluation program by pharmaceutical educators for specific use in pharmaceu-

tical education should be a justifiable and worthwhile program for this Association.

The second project for the past year has been a collaborated experimental project between the Committee and Mr. Warren Sturgis of New York. In discussing audio-visual programs at the Atlantic City meetings and at a subsequent meeting of the American Medical Association in San Francisco, the chairman and Mr. Sturgis conceived of a demonstration film on a selected pharmacy technique subject, Mr. Sturgis providing the technical know how and the Committee preparing the script and serving as consultants. The reason that this film was conceived was because of the interest shown by various members of the Association in teaching films of this type. The production of the film brought to the Committee's attention many of the problems concerned with the scientific preparation of a teaching film. Dr. Finney of the Committee and Mr. Sturgis should be acknowledged by the Association for the investment of both time and money, for their interest, and for their constant effort so that the film "The Manual Preparation of Tablet Triturates" might be shown to members of the Association at this meeting.

The Committee has given considerable time to study what might be the most valuable program in audio-visual education for the Association. The need for continued emphasis on this phase of any educational program is now well accepted. Although a Committee is necessary to carry on a liaison between the Association and activities in audio-visual education in general, it is becoming apparent that the Association needs a more aggressive program than the Committee can sponsor. One suggestion that has been proposed is that some young instructor in one of the colleges with an interest in audio-visual work be selected and subsidized in a year's study of audio-visual methods and their application. This individual would then become the key figure in promoting the long-range program of the Association, either on a part-time or full-time basis. This plan has considerable merit since it would place the program of the Association in the hands of a competent and trained individual. On the other hand, finding the right individual and likewise finding a school from which he might be obtained would present an additional problem. The Committee feels that the pro-

gram of the future might well include as an initial step one of the following: (1) to train and employ a full or part-time specialist; (2) to undertake a film evaluation program of available films including the publishing of the data, and (3) to undertake the production of a series of pharmacy-technique films, perhaps one film annually for a nominal cost.

Whatever worthwhile program that the Association may choose for the future, the problem of financial support will be the number one problem. The Association must decide that a program in audio-visual education will require funds that of necessity cannot be obtained from the Association treasury, but which must come from outside sources. The Committee believes that all of the above mentioned projects are worthwhile and it furthermore believes that funds could be procured if the Association became so motivated. The Committee is in need of forthright expression from members of the Association as to the thinking of educators in pharmacy for future planning in this area.

The Committee wishes to thank member colleges, deans and staffs for the splendid response to its program during the past year.

DONALD C. BRODIE, *Chairman*

Films Available From Pharmaceutical Manufacturers
All are 16 mm.

1. **ACTH. Physiologic Basis for the Action in Human Beings.**
   Color, silent, 40 minutes. Armour Laboratories
2. **ACTH. The Therapeutic Use in Human Disease.**
   Color, sound, 40 min. Armour Laboratories
3. **Amebiasis.**
   B & W, silent, 30 min. Eli Lilly & Co.
4. **Analgesia. Continuous Spinal in Caesarean Section.**
   Color, silent, 40 min. Abbott Laboratories
5. **Analgesia. Continental Cuadal in Obstetrics.**
   Color, silent, 45 min. Eli Lilly & Co.
6. **Anemia. Folvite in the Treatment of.**
   Color, silent, 20 min., or
   Color, sound, 20 min. Lederle Laboratories
7. **The Anemias.**
   Color, silent, 45 min. Lederle Laboratories

8. **Anesthesia, Intravenous.**
   Color, silent, 35 min. — **Abbott Laboratories**
9. **Anesthesia with Vinethene.**
   Color, sound, 25 min. — **Merck & Co.**
10. **Anesthesia with Vinethene in the Operating Room.**
    Color, silent, 12 min. — **Merck & Co.**
11. **Anesthesia with Vinethene in Dentistry.**
    Color, silent, 12 min. — **Merck & Co.**
12. **Anesthesia with Vinethene by Open-Drop Administration and Complementing Nitrous Oxide-Oxygen.**
    Color, silent, 10 min. — **Merck & Co.**
13. **Anesthesia. Low Spinal (Modified Saddle-Block) in Obstetrics.**
    Color, silent, 20 min. — **Ciba**
14. **Antitoxins, Globulin Modified.**
    Color, silent, 45 min. — **Lederle Laboratories**
15. **Aureomycin, The Versatile Antibiotic.**
    Color, sound, 40 min. — **Lederle Laboratories**
16. **Bone Marrow. Clinical Application of Bone Marrow Study.**
    Color, silent, 40 min. — **Armour Laboratories**
17. **Caesarean Section.**
    Color, silent, 548 feet,, — **Parke-Davis & Co.**
18. **Cardiac Arrhythmias.**
    Color, silent, 30 min. — **Abbott Laboratories**
19. **Cell Division and Growth.**
    B & W, sound, 13 min. — **Abbott Laboratories**
20. **Coramine-Electroshock Therapy in the Treatment of Psychotic Excitement.**
    Color, sound, 20 min. — **Ciba**
21. **Diphtheria and Croup.**
    B & W, silent, 45 min. — **Lederle Laboratories**
22. **Digitora.**
    B & W, silent, 15 min. — **The Upjohn Company**
23. **Energy Release from Food.**
    Color, sound, 26 min. — **The Upjohn Company**
24. **First Steps in First Aid.**
    B & W, sound, 30 min. — **The Upjohn Company**
25. **Gelfoam in Hemostatics.**
    B & W, silent, 30 min. — **The Upjohn Company**
26. **Gelfoam in Oral Surgery.**
    Color, silent, 20 min. — **The Upjohn Company**
27. **Gelfoam in Surgery.**
    Color, sound, 40 min. — **The Upjohn Company**
28. **Hemopoietic Principle, the Physiology and Pathology of.**
    Color, silent, 40 min. — **Armour Laboratories**

29. Heparin in the Prevention and Treatment of Thrombosis.
Color, sound, 30 min. The Upjohn Company
30. Hormones, Sex. Physiology, Diagnosis, Therapy.
Half B & W, half color, sound, 2000 ft. Parke-Davis & Co.
31. Hormone, The Male Sex.
Color, sound, no time given The Schering Corp.
32. Immunization Against Infectious Diseases,
Color, silent, 45 min. Lederle Laboratories
33. Intravenous Therapy, Modern Trends in.
Color, silent, 30 min. Abbott Laboratories
34. Industry For Health.
B & W, sound, 30 min. The Upjohn Company
35. Kidney Function in Health.
Color, sound, 38½ min. Eli Lilly & Co.
36. Kidney Function in Disease.
Color, sound, 46½ min. Eli Lilly & Co.
37. Leukorrhea, Its Diagnosis and Treatment.
Color, silent, 37 min. Ciba
38. Menstruation, The Physiology of Normal.
Color, sound, no time given The Schering Corp.
39. Nicotine Acid Deficiency.
Color, silent, 40 min. Eli Lilly & Co.
40. Post-Encephalitic Parkinsonism.
B & W, silent, 25 min. Lederle Laboratories
41. Pentothal Sodium in Obstetrics.
Color, silent, 45 min. Abbott Laboratories
42. Riboflavin Deficiency.
Color, silent, 40 min. Eli Lilly & Co.
43. Respiratory Stimulants, The Pharmacology of.
B & W, with some color, silent, 45 min. Ciba
44. Scalp Avulsion.
Color, silent, 548 feet. Parke-Davis & Co.
45. Thiamine Chloride Deficiency.
Color, silent, 35 min. Eli Lilly & Co.
46. Sulfonamide Therapy.
Color, silent, 45 min. Lederle Laboratories
47. Vitamins and Some Deficiency Diseases.
Color, silent, 45 min. or
Color, sound, 45 min. Lederle Laboratories
48. Vitamins in Nutrition.
B & W, sound, 35 min. Merck & Co.
49. Wounds of Violence, Managing Fresh.
Color, silent, no time given Bauer & Black

Motion Picture Films Produced By Institutions Accredited By The American Council on Pharmaceutical Education

Seventy (70) institutions accredited by the American Council on Pharmaceutical Education were asked to participate in this survey. A letter explaining the purpose and a return postal card upon which one could easily check the required information was sent to the deans of these institutions. A total of fifty-one (51) replies were received as of April 15, 1951.

Only three (3) institutions replied as having made pharmaceutical technique movie films, namely, University of Connecticut, Brooklyn and Loyola.

The University of Connecticut has prepared the largest number of movie films—eight in all. Of these, one is available for rental at a nominal fee of $2.00. ("Hand Method of Pill Manufacturing", Audio-Visual Aid Department, University of Connecticut, Storrs, Connecticut). All movie films produced at the University of Connecticut are 16 mm., color (silent) and have a running time of from 12 to 15 minutes. The titles of their films are:

(1) Hand Method of Pill Manufacturing (available for rental)
(2) The Manual Preparation of Tablet Triturates
(3) Percolation Procedure
(4) The Manual Filling of Powders in Capsules
(5) Preparation of Divided Powders
(6) Prescription Balance Weighing Technique
(7) The Manual Preparation of Suppositories

The Brooklyn College of Pharmacy has prepared three 16 mm., color (silent) films. No indication was given as to their running time, and they are not available for rental. The titles of their films are:

(1) Filling a Collapsible Tube
(2) Hand and Machine Suppository Manufacturing
(3) Pill Manufacturing

They intend to make three additional films in 1952 on the subjects of Capsule Filling, Tablet Triturate Manufacturing and Bulk and Divided Powders.

The Loyola College of Pharmacy has prepared two 8 mm., color (silent) films of approximately 75 feet in length. They are not available for rental. Their titles are:

(1) Suppository Manufacturing
(2) Tablet Manufacturing

The University of Mississippi School of Pharmacy has prepared six movie films (silent) useful in the teaching of pharmacology. They are not available on a rental fee but can be borrowed provided transportation is paid. No indication is given as to their size or running time. Their titles are:

(1) Digitalis Action (in color)

(2) Autonomic Poisons
(3) Action of Drugs on Intestinal Tract
(4) Local Anesthetic
(5) Technique of Administration of Drugs to Experimental Animals
(6) Barbiturates

The University of Washington College of Pharmacy, Seattle, has one 16 mm., color (sound) film which is available for rental. The title is "Congenital Heart Disease". They are now preparing a film on "Anesthetic Irritants".

The College of Pharmacy of Montana State University has prepared three 8 mm., black/white (silent) useful in the teaching of Pharmacology. They are not available for rental. Their titles are:

(1) Bioassay of Insulin
(2) Respiration and Blood Pressure
(3) Heart Action

The College of Pharmacy at the University of Arizona has prepared one 16 mm., color (silent) film useful in the teaching of Pharmacology. It is not available for rental. The title is "Action of Metrazol on the Rabbit".

Audio-Visual Instructional Film Used in Botany and Pharmacognosy Courses by Various Teachers in Colleges of Pharmacy

University of Washington: Botany (Biology)

Birth of the Soil, 11 in sd; color; $2.25. Fascinating story of how nature produces our precious life-giving topsoil from the basic raw materials.

Flowers at Work, 10 min sd; $1.75. Explains main function of flowers as that of producing seeds.

Fungus Plants, 11 min sd; $1.75. Various mushrooms, growth and reproduction illustrated by time-lapse photography and animation.

Gift of Green, 20 min sd; color; $1.00. Usually well-produced film showing leaf structure and functions, with special emphasis on photosynthesis.

Heredity, 11 min sd; $1.75. Mendelian laws of inheritance are presented through use of animated charts and animal picturization.

Leaves, 10 min sd; $1.75. Explains how leaves manufacture food for plants; relation of leaves to roots, stems, flowers.

Plant Growth, 10 min sd; $1.75. Describes complete life cycle of pea plant utilizing unique features of motion picture techniques to observe seed germination, actual growth, etc.

Roots of Plants, 10 min sd; $1.75. Describes tap, fascicled and fibrous roots and explains how they not only hold the plant in place but also absorb food elements from soil.

Seed Dispersal, 10 min sd; $1.75. Various means by which seeds are disseminated; how they anchor themselves to ground to facilitate germination; how they protect themselves.

Pharmacognosy

Body Fights Bacteria, 15 min sd; $2.25. Story of neverending battle between disease producing organisms and the human body.

Digestion of Foods, 11 min sd; $1.75. Summarizes the digestive process in mouth, stomach, and small intestine.

Endocrine Glands, 11 min sd; $1.75. The nature and function of the parathyroid, thyroid, pituitary, and pancreas glands.

Heart and Circulation, 11 min sd; $1.75. The mechanics of the pulmonary and systemic systems are shown in detail with delineation of heart action.

Immunization, 11 min sd; $1.75. Combines animation and live photography to depict external symptoms of disease and how they affect the bloodstream.

Malaria, 13 min sd; $1.00 (USPHS)

Nervous System, 11 min sd; $1.75. The structure of the nervous system, its pathways and connections; the nature of the nerve impulse, condition for setting up impulses, and activity of cerebrum.

Story of the Microscope, 12 min sd; $1.75. The microscope in modern science.

The Physiology of Menstruation, 20 min sd; Schering Corp. Bloomfield, N. J. (free). Excellent color film depicting various aspects of the physiology and hormone functions in the normal menstrual cycle.

The Army has mimeographed a list entitled:

"Army Films on Medical Subjects Available on a loan Basis to the Medical Profession and Allied Scientific Groups."

This list contains approximately 175 motion pictures and 45 film strips.

Films With Direct or Implied Pharmacologic Content

All moving picture films are 16 mm., and film strips 35 mm., silent, and black and white, unless otherwise stated. "A.S.C." indicates inspection and approval by the American Colleg eof Surgeons, Committee on Medical Motion Pictures.

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Prescription Writing

Weights and Measures for Hospital Corpsmen. Film strip and phonograph record. U. S. Navy SN-1581. 15 min. Obtain from Navy.

The apothecary and metric systems are explained and made graphic by comparison with common objects. Although some calculations are carried much beyond the stage considered practical in ordinary prescription writing, it is generally well directed. Furnishes good suggestions for preparation of film strips which might be successfully used in introducing the problems of prescription writing to medical students.

Administration Methods

Hospital Care of Syringes and Needles. Color. 20 min. A.C.S.
Gives standard procedures outlined by the American College of Surgeons.

Making Syringes and Needles. Color. 20 min. A.C.S.

Conservation of Syringes and Needles. Color. 30 min. A.C.S.
Combines more important features of above two films.

Techniques of Injection. Color. 20 min.
Procedure for intradermal, hypodermic, intramuscular and intavenous injections.

Above four obtained from Becton-Dickinson

The Bone Marrow Cavity as a Route to Parenteral Therapy. (1940) Color. (1 reel) A.C.S. Obtain from Dr. L. M. Tocantins, 1025 Walnut Street, Philadelphia 7, Pa.
An adequate demonstration of the technic of intamedullary injections.

How to Use Serum Albumin. MN-2145. Obtain from Navy.
Clearly gives detail of opening containers and starting infusion.

How to Use Dried Plasma. MN-1556. Obtain from Navy.
Details of opening containers and starting infusions.

Blood Transfusion. 1 large reel. 45 min.
Three methods of blood transfusion illustrated in detail. Produced by Joseph P. Hackel, New York, N. Y. Obtain from A.M.A.

Technique of Blood Transfusion. (1936) By Dr. H. K. Tenney, Jr., Madison, Wis. 2 reels. A.C.S. Obtain from Mead Johnson.
Details of technic with older types of equipment.

Oral Medication. (1944) Sound. 7 min. Obtain from Castle Films.
Shows routine procedure and precautions to be used by nurses.

General Anesthesia

The Manufacture of Anesthetic Ether. (1933) 1 reel, A.C.S. Obtain from Mallinckrodt.

The Advent of Anesthetic Ether. (1933) 1 reel. A.C.S. Obtain from Mallinckrodt.
A re-enactment in the old Massachusetts General Hospital of the first publicized demonstration of ether anesthesia.

Vinethene. Color. 12 min. Obtain from Merck.

Shows conduct of several short operations under vinethene and the use of vinethene as an induction agent prior to ether.

Signs of Inhalation Anesthesia. 2 reels. 25 min. Details of signs of inhalation and anesthesia with charts by Dr. Arthur E. Guedel. Prepared by Dr. Henry S. Ruth and Dr. J. Harvey Sigafoos. Obtain from A.M.A.

Good illustrations of stages and planes of anesthesia.

The Dynamics of Respiration. (1944) University of Wisconsin, Depts. of Anesthesia, Radiology and Photography. Color. 3 reels. A.C.S. Obtain from A.M.A.

A Technique of Carbon Dioxide Absorption from Anesthetic Atmospheres. (1938) Color, 1½ reels. University of Wisconsin. A.C.S. Obtain from A.M.A.

The Role of Carbon Dioxide During Anesthesia. (1942) University of Wisconsin. ½ reel. A.C.S. Obtain from A.M.A.

Above three are excellent demonstrations of anesthetic methods and complications.

Local Anesthesia

Regional Anesthesia. (1940) Color. 4 reels. 50 min. A.C.S. Obtain from Winthrop Chemical Company.

Covers abdominal block, spinal anesthesia, sacral plexus block, cervical plexus block, brachial plexus block, and ulnar and median nerve block.

Opiates

Dilaudid. Prepared by Dr. M. H. Seevers, University of Wisconsin. 1 reel. Obtain from Bilbuber-Knoll.

Shows withdrawal symptoms in monkeys.

The Effects of Morphine on Learned Adaptive Behavior and Experimental. Neuroses in Cats. (1943) 1 reel. A.C.S. Obtain from Dr. Masserman. (Rental Basis)

Action of Drugs on Intestinal Motility. (1937) Color. 1 reel. A.C.S. Obtain from Dr. Charles B. Puestow, 437 Glencoe Ave., Highland Park, Ill.

Good demonstration of observations reported by C. B. Puestow "Morphine on gut exposed in hernial sac." J.A.M.A., 120:903, 1942.

Analeptics

Coramine. Sound. Color. 45 min. Obtain from Ciba.

Includes animation showing mechanisms of respiratory stimulation, apparatus for measuring accumulated tidal volume and methods for optical registration of intrathoracic, vascular and intr-abdominal pressures.

Pharmacological Study of Metrazol. 2 reels. Obtain from Bilhuber-Knoll. Includes demonstrations of arousing actions and effects on respiratory and circulatory systems under ordinary laboratory conditions.

Autonomics

Myasthenia Gravis. (Erb-Goldflam syndrome) (1941-42) By Dr. Henry R. Viets and Dr. Robert S. Schwab, Boston. 1 reel. A.C.S. Obtained from Dr. Viets, Massachusetts General Hospital, Boston, Mass.

Exceptionally smooth demonstration of clinical cases, summary of incidence, background, etc. Acute response to drug therapy is shown in detail.

Post-encephalitic Parkinsonism. 25 min. Obtained from Lederle.

Good clinical demonstrations of typical cases. Improvement following treatment with belladonna preparations is shown.

Mecholyl Chloride Administered by Ion Transfer. Color. 1 reel. 12 min. Obtain from Merck.

Illustrates method for administration by means of the galvanic current and shows the results in a case of chronic ulcer and in a case of scleroderma. Taken at the Peripheral Vascular Clinic of the Post-Graduate Hospital, N. Y.

Influence of Drugs on Gastrointestinal Motility. 1 reel. 16 min. Prepared by Drs. H. B. Kellogg and L. W. Dowd, Northwestern University. Obtain from Wyeth.

Intocostrin in Poliomyelitis. Available after July 1, 1946. Obtain from Squibb.

Antacids

Peptic Ulcer. (Including incidence, etiology, pathology, diagnosis, treatment, complications, surgery). (1942) By Dr. Everett D. Kiefer, Boston. Sound. Color. 4 reels. A.C.S.. Obtain from Wyeth.

An exceptionally fine grade film in every respect. Based on methods of the Lahey Clinic.

Physiology of Anoxia. The Basis of Inhalation Therapy. (1942) Sound. 2 reels. A.C.S. Obtain from Linde Air Products Co.

Prepared with the collaboration of A. L. Barach, W. M. Boothby, A. B. Luckhardt, C. F. Schmidt and R. M. Waters. Extensive animations illustrating the basic types of anoxia, illustrations of appropriate anatomical preparations, oxygen equipment, etc. Explanatory pamphlet is available.

Oxygen Therapy Procedures. (Illustrates different types of oxygen therapy apparatus and demonstrates correct operating procedures.) (1944) Sound. 3 reels. Obtain from Linde. Illustrated pamphlet is available, "Oxygen Therapy Handbook." A.C.S.

Oxygen in Aviation. U.S. Navy MN-32. Obtain from Navy. Prepared by Warner Bros.)

Shows behavior and gross effects of anoxia in the human. Is intended as elementary demonstration of function of oxygen and as emphasis on proper use of oxygen equipment by flying personnel.

Cardio-vascular

Angina Pectoris. (1942) Sound. Color. 2 large reels. (Clinical Characteristics, Physiology, Pathology, Treatment) Produced by Dr. J. E. F. Riseman. Boston. Obtain from Harvard Film Service, also A.M.A. (A.C.S.)

Includes excellent illustrations of anatomical preparations. Demonstrates measurements of physical activity in evaluating status of this condition and its treatment. Favorable results with proprietary form of theobromine are emphasized.

Allergy. By Dr. Bret Ratner, Depts. Pediatrics and Immunology, N. Y. University College of Medicine, New York, N. Y. Obtain from Mead Johnson.

Includes anaphylactic phenomena in guinea pigs, rabbits, and dogs.

Chemotherapy

Sulfonamide Therapy. By Dr. N. Plummer and C. H. Wheeler, New York. Color. 45 min. Obtain from Lederle.

An excellent film. Gives good historical background and shows developments leading to introduction of sulfadiazine.

Pneumonia. Diagnosis and Treatment. (1939, revised 1941) By Dr. M. Plummer and H. Ensworth, New York. A.C.S. Lederle.

An excellent presentation. The section on treatment includes toxic effects of sulfadiazine. Not currently available.

Syphilis—A Teaching Film. Sound. Color. 3 reels. (1941) Parts A and B Examination method with typical cases. Part C Management. 29 min. Obtain U.S.P.H.S., also A.M.A. (A.C.S.)

Drug therapy schedule of Cooperation Clinical Group is illustrated. Prophylactic use of calomel and silver proteinate is included.

Magic Bullets. Sound. 30 min. Dramatization of the work of Paul Ehrlich. Prepared by Warner Bros. Obtain from U.S.P.H.S. (A.C.S.)

Condensed from the entertainment film of the same title. Is a satisfactory portrayal of the atmosphere of the European research institute of that day.

Clinical Malaria. U. S. MN-1965. A.C.S. Obtain from Navy.

Good dramatization of febrile episode with animation correlating clinical phenomena with plasmodim cycle. Drug therapy is briefly included.

Amebiasis. (1936) By Drs. R. L. Dagg and F. D. John, Chicago. 2 reels. A.C.S. Obtain from Eli Lilly.

Chiefly diagnostic. Carbarsone therapy is described but not especially illustrated.

Schistosomiasis. (1946) Film strip with record. 30 min. Obtain from U.S.P.H.S., Office of Malaria Control, Atlanta, Ga.

Attractive illustrations of background, transmission and clinical features. Drug therapy including use of Anthiomaline is presented.

Penicillin in Medicine and Surgery. Sound. Color. 4 reels. 40 min. Available after July 1, 1946. Obtain from Squibb.

Drugs Acting on Blood

The Anemias. (1943) By Dr. W. P. Murphy, Boston. Color. 3 reels. 45 min. Obtain from Lederle.

Pernicious Anemia. (1938) 2 reels. 30 min. By Dr. W. P. Murphy, Boston. A.C.S. Obtain from Harvard Film Service.

Symptoms, diagnosis and treatment.

Carbon Monoxide. 1 reel. Obtain from Bureau of Mines, 4800 Forbes St., Pittsburgh, Pennsylvania.

Enacts some scenes illustrating poisoning by common sources of monoxide. Although fairly old now and intended for laymen, it is scientifically sound and might be used for emphasis.

Dried Plasma. (1941) Color. ½ reel. A.C.S.

Preparations and Preservation of Pooled Plasma. (1941) Color. ½ reel.

Above two films obtained from Dr. John Scudder, 622 W. 168 St., N.Y.C.

Hormones

Sex Hormones, Physiology, Diagnosis, Therapy. (1940) Sound. Color. 5 reels.

Chiefly estrogens and pituitary. A.C.S. Parke Davis.

Diabetes. Reel 1, Symptoms; Reel 2, Treatment. (1936) By Dr. F. N. Allan, Boston. A.C.S. Obtain from Worcester Film Corp.

Care of the Patient with Diabetes Mellitus. (1945) Sound. 23 min. Obtain from Castle Films.

They Live Again. Prepared by M.G.M. Obtain from Secretary, American Museum of Natural History, New York, N. Y.

Shows background of the discovery of insulin. Emphasis is on emotional state of the experimenters.

Avitaminoses

Modern Nutrition. A clinical Symposium. (1944) Sound. Color. 4 reels. Obtain from Squibb. A.C.S.

Illustrated discussoins by Drs. S. N. Jahffe, Tom Spies, W. H. Sebrell and Robert Goodhart. A 16 pp. illustrated pamphlet of the same title is available.

Vitamins and Some Deficiency Diseases. (1942) Sound. Color. 4½ reels. Obtain from Lederle Laboratories. A.C.S.

A comprehensive summary of the important vitamins. A number of deficiencies in animals are shown.

Thiamnie Chloride (B_1) Deficiency. (1942) Color. 2 reels. Obtain from Eli Lilly. A.C.S.

Riboflavin (B_2) Deficiency (Ariboflacinosis). (1942) Color. 2½ reels. Obtain from Eli Lilly. A.C.S.

Nicotinic Acid Deficiency. (1942) Color, 2½ reels. Obtain from Eli Lilly. A.C.S.

Above 3 films made in collaboration with Dr. Tom Spies, Birmingham, Ala. They contain considerable written introductory material which is the same in 3 films.

Printed Lists of Medical Films

Pharmacology Cinema Films. Western Reserve University. 4 pp.

List of 26 films which may be purchased through the office of the business manager of Western Reserve University. A number are based on exercises in Sollman and Hanzlik "Fundamentals of Experimental Pharmacology."

Medical Motion Picture Films. Bulletin American College of Surgeons, Dec. 1945.

A 42-page classified list with specifications. Selection is not confined to films of purely surgical interest but is a comprehensive coverage of the entire medical field.

Society of American Bacteriologists. Committee on Materials for Visual Instruction in Microbiology, Dr. Harvey E. Morton, Chairman, University of Pennsylvania, School of Medicine, Philadelphia 4, Pennsylvania.

List of 80 films for which comprehensive and critical abstracts are forwarded at the cost of 3 cents each.

Approved Motion Picture Films. Review Committee of the American Association of Anatomists, The American Society of Zoologists and the Wistar Institute. Anatomical Record, 86: 223-226, 1943.

Silent Medical Films. (Formerly Eastman Medical Films)

List of 20 films available for rent or purchase. Encyclopedia Britannica Films, Inc., 1841 Broadway, New York 23, N. Y.

The Erpi Human Biology Films. 11 pp.

Abstracts of 26 films available for purchase. Encyclopedia Britannica Films, Inc., 1841 Broadway, New York 23, N. Y.

Medical Motion Pictures. J.A.M.A. 129: 138-9, 1945.

Specification of 24 selected films distributed by the Director of the Scientific Exhibit, A.M.A.

Nursing Films. J.A.M.A., 129: 467, 1945.

Catalog of Training Films for the United States Navy, Marin Corps, Coast Guard. March, 1945. 514 pp.

Cumulative Supplement. July, 1945. 41 pp.

When appropriate, films may be obtained through the District Medical Officer or the Officer of Public Information.

List of Training Films, Film Strips and Film Bulletins. War Department Basic Field Manual. FM-21-7. June, 1944.

U. S. Government Films for School and Industry. 36 pp. Castle Films, 30 Rockefeller Plaza, New York 20, N. Y. Distributed through dealers on purchase or rental basis.

634 motion pictures and 524 film strips produced by various Governmental departments and agencies. 14 nursing films listed on p. 3; 12 safety anad first aid films, p. 28.

New York University Film Library. 107 pp.

18 medical films are listed on p. 15. Available on rental basis. Address: Press Annex Bldg., 4th Floor, 26 Washington Place, New York 3, N. Y.

Harvard Film Service. 1943.

7 films listed, which are available for rental.

Educational Films Guide. 1945. 490 pp. H. W. Wilson Co., New York.

Abstracted list includes nursing, hygiene, nutrition, physiology, and medical subjects.

Educators Guide to Free Films. 5th Ed., Aug. 1945. Educators Progress Service, Randolph, Wisconsin. 254 pp.

Abstracted list includes sections on health education, first aid, hygiene, biology, and chemistry.

"Health and Medicine." 1944-45. 4 pp. British Information Service, 30 Rockefeller Plaza, New York 20, N. Y.

12 films available from British consular offices.

Films on Surgery. 14 Ed. Surgical Film Library, Davis & Geck, Inc., 57 Willoughby St., Brooklyn 1, N. Y.

About 100 films available without charge.

Medical Film Guide. 12 films available at no charge through a grant for instruction. Address: J. P. Hackel, 167 W. 57th St., New York, N. Y.

Sarnoff Surgical Motion Picture Library. 11 pp. 1406 Albermarle Road.

List of films which may be purchased.

Catalog of Medical Motion Picture Subjects. 86 pp. Mead Johnson Company.

Comprehensive abstracts of 51 surgical, obstetrical, pediatric and laboratory films.

Motion Pictures from the Lederle Film Library. 10 pp.

Abstracts of 12 films.

List of B-D Films. 1946. Physicians Service Dept., Becton, Dickinson & Co., Rutherford, N. J.

8 films are listed.

Visual Education in Otology. Auralgan Research Division, 58 Varick

St., New York, 13, N. Y.
7 films.

Winthrop Library of Medical Motion Pictures. Winthrop Chemical Co., Inc., 170 Varick St., New York 13, N. Y.
Abstract of films on 6 subjects.

U.S.P.H.S. Malaria Control in War Areas. H. G. Office, 605 Volunteer Bldg., Atlanta 3, Ga.

Distribution Memorandum No. 15 Mar. 15, 1946. 11 pp.
Abstracts of 38 films or film strips, mostly issued in 1945, bearing on malaria and its control. Details of the use of DDT make up about ⅓ of this material.

Ditto: No. 15-A. 3 pp.
6 films and film strips issued in 1946. Includes demonstration of the use of 1080.

Motion Pictures if the U.S.P.H.S. Obtain through State or local Health Depts.
15 films.

The American Chemical Association in a brochure "Films on all Chemical Subjects, 1949 (Bulletin 2)" lists a large number of chemical films suitable for use in every phase of chemistry. The number of films listed in this publication are too numerous to list in this Report.

Filmstrips and Miscellaneous

(Compiled by L. D. Lockie)

Finding Tuberculosis.
35 mm. Color, silent — Lederle Laboratories

The Natural History of a Vitamin—Folic Acid
35 mm. Color, silent — Lederle Laboratories

Window and Interior Display.
35 mm. Color, 33 r.p.m. record — City College of N. Y.

Promotion to the Professions.
35 mm. Color, 33 r.p.m. record — City College of N. Y.

Merchandising Prescription Accessories.
35 mm. Color, 33 r.p.m. record — City College of N. Y.

Departmentalization.
35 mm. Color, 33 r.p.m. record — City College of N. Y.

Transparencies

The Ciba Company has a list of nearly 300 35 mm. (2" x 2"), mostly on Pathology, which are offered for sale at 25c each.

Report of the Historian

There are two time honored concepts which seem to be definitely disproved by the unheard of tempo of today's development in almost every field of human endeavor: (1). that "there is nothing new under the sun" and (2). that "history repeats itself." And yet, these statements still contain the limited amount of truth that can be expected of such aphoristic assumptions.

However accelerated the pace of history may be, nothing happens that has not grown up from some seed sown in the past, and everything is based on human trends, needs and demands that are part and parcel of human nature hence rather permanent. It is for this reason that we still, if not even more than ever, need history as our guide. As far as our special field, pharmacy (and pharmaceutical education in particular) is concerned, this fact has convincingly and effectively been proven by the *General Report of The Pharmaceutical Survey 1946-1949*, issued in 1950.

In the second edition of the *Kremers-Urdang, History of Pharmacy* (p. 318) I commented on this report as follows:

"To whatever extent is 'recommendations' may be realized, this *Survey* represents something unique in the history of world pharmacy and cannot fail to inaugurate a new era in American pharmaceutical education."

It is significant that this fact has not been denied by anyone playing a responsible part in American pharmacy. The question under discussion is whether the needs of modern pharmaceutical education requires a prolongation of the academic study (to five or six years) or can be met in the present four year course by adequate changes in the curriculum and the time table. It is just this discussion which proves that still, and even to a rather remarkable extent, history repeats itself although, naturally, on another turn of the spiral.

I may be allowed to point to the fact that the chapter on the development of education in the new edition of the Kremers-Urdang book, just off the press, has been expanded as well as revised. The dated list of "institutions of higher learning in the United States having or representing a school of pharmacy" has been thoroughly

checked and brought up to date, and the chapter has been rounded out through the addition of brief but pertinent discussions of the associations of schools and boards of pharmacy, (the A.A.C.P. and the N.A.B.P.) the American Foundation for Pharmaceutical Education and, finally, the Pharmaceutical Surveys of the last three decades.

It is the task of such summarizing discussions as offered in the about 40 pages devoted to the development of pharmaceutical education in the United States in the new edition of the *Kremers-Urdang, History of Pharmacy*, to provide a clear picture of the entire scene, a general orientation. This picture has to be based on and to be supplemented by detail studies. Such detail studies have been made by prominent men in American pharmacy since about the middle of the nineteenth century and my dear late friend, Edward Kremers, has made investigations of this kind a rather prominent part of his fight for the changes in pharmaceutical education which he thought necessary.

In my 1949 report (*Am.J.Pharm.Ed*, 13: 516-518, 1949) I stressed the fact that the American Institute of the History of Pharmacy has made detailed studies in the history of American pharmaceutical education its special task as every one of you will have seen (and some of you will even have read) in respective articles in the *American Journal of Pharmaceutical Education*. As to pertinent publications in 1950 and 1951 I take the liberty to point to the papers on "Teaching History of Pharmacy" by G. Urdang and G. Sonnedecker (*Am.J.Pharm.Ed*· 14: 128-156, 1950), "Edward Parrish, a Forgotten Pharmaceutical Reformer" by G. Urdang (*Am.J.Pharm.Ed*. 14: 223-232, 1950), "The Part of Doctors of Medicine in Pharmaceutical Education" by G. Urdang (*Am.J. Pharm.Ed*· 14: 546-555, 1950) and finally "Science in American Pharmaceutical Education of the Nineteenth Century" by Glenn Sonnedecker, which helped earn for his author the master of science degree in the history of pharmacy at the University of Wisconsin (*Am.J.Pharm.Ed*. 15: 185-217, 1951).

The Doctor thesis of Glenn Sonnedecker to be expected in 1952 will deal with the development of North American pharmaceutical education until 1900 and—as a concluding effort—a cooperative venture of his and my pen may present some day a book

going up to the present and dealing with all phases of American pharmaceutical education within the frame of American general as well as trade and professional education.

In my last report I expressed the hope that the booklet on the history of the American Association of Colleges of Pharmacy (to be issued by the American Institute of the History of Pharmacy), on which Glenn Sonnedecker has been working whenever his academic and other duties permitted him to do so, would appear still in 1950, the year of our fiftieth anniversary. This has not been realized. But the work is going on and we thought a worthwhile job more important than a quick one.

It still remains for men to point to some recent publications offering dates and data on individual schools of pharmacy. In *"The Story of California Pharmacy,"* written by George Griffenhagen on the occasion of the centenary of the statehood of California in 1950, published first in the *Pacific Drug Review* and reshaped and distributed as a separate booklet by the American Institute of the History of Pharmacy, data are provided on the founding of the two California Colleges of pharmacy (University of California and University of Southern California.).

In 1951 remarkable memorials of pharmaceutical diamond jubilees have appeared in Connecticut and in South Carolina. In the *"Story" on the Connecticut Pharmaceutical Association*, compiled by Alice-Esther Garvin, poetess as well as association secretary, we are presented with a significant picture of the opinions held by the rank and file pharmacists on pharmaceutical education, its necessity and scope, as expressed in speeches before the Connecticut College of Pharmacy was founded (1925) and when the four-year course was adoptted (1932). In "The History of Pharmacy in South Carolina", authored by the pharmaceutical historian and professor at the School of Pharmacy of the Medical College of the State of South Carolina, a special chapter deals with the "pharmaceutical education at the Medical College, Charleston." It is accomplished by a comprehensive list of teachers in the school of pharmacy of the college since 1882 with their academic degrees and their teaching subjects attached to their names, thus revealing the changes that took place in the curriculum, in the requirements asked of the teachers as well as of the students.

It is noteworthy that the expenses for issuing Hoch's *"History of Pharmacy in South Carolina"* as a nicely styled brochure (87 pages) have been defrayed by the City of Charleston. " 'America's Most Historic City,", says Hoch, "adds another 'first' to her long list—the first city to present a history of pharmacy." Another testimony to the splendid relations between the South Carolina citizens and their pharmacists is offered by the fact that the non-pharmaceutical *South Carolina Magazine* has featured the diamond anniversary of the South Carolina Pharmaceutical Association in a special issue (June 1951). It is in this issue that the development of the School of Pharmacy at the University of South Carolina, only sporadically referred to in Hoch's "History", has been described by Dean E. T. Motley.

With this your historian's 1951 report would be concluded, were it not for a suggestion by Professor J. Hampton Hoch of an Oath to be administered to all students graduating from our schools of pharmacy. The Oath composed by Dr. Hoch has been patterned after the time-honored Oath of Hippocrates, still administered to graduating students of medicine at many medical schools all over the world, and it is just this fact which gives it an historical patina and stresses the relationship in tasks and responsibility between pharmacy and medicine. The Oath reads as follows:

> **"I promise to do all I can to protect and improve the physical and moral well being of society, holding the health and safety of my community above all other consideration. I shall uphold the laws and standards governing my profession, avoiding all forms of misrepresentations, and I shall safeguard the distribution of medicinal and potent substances.**
>
> **"Knowledge gained about a patient, I shall hold in confidence and never divulge unless compelled to do so by law.**
>
> **"I shall strive to perfect and enlarge my knowledge to better contribute to the advancement of Pharmacy and the public health.**
>
> **"I furthermore promise to maintain my honored credit in all transactions and by my conduct never to bring discredit to myself and my profession, nor to do anything to diminish the trust reposed in my professional brethren.**
>
> **"May I prosper and live long in favor as I keep and hold to this my Oath but should I violate these sacred promises, may the reverse be my lot."**

It is understood that any desired kind of invocation might be added to the Oath as a sanctifying introduction.

In November 1950 the American Institute of the History of Pharmacy furnished its members with copies of the Oath asking for comments. The Oath has aroused interest everywhere, within and without the United States, and there were hardly any changes suggested. In the home state of its author, South Carolina, the Pharmaceutical Association has recommended the adoption of the Oath by both of the State's pharmacy schools. It was inaugurated for the first time at the commencement exercises of the Medical College of the State of South Carolina in June 1950.

Convinced that the administration of this Oath to graduating students of pharmacy will serve as a fitting and lasting reminder of the ethical values and obligations of the profession, I am offering the following resolution:

Resolved, that the American Association of Colleges of Pharmacy recommend for use by its constituent schools the Pharmacists' Oath, prepared by J. Hampton Hoch, and that the American Institute of the History of Pharmacy be requested to send a copy of the Oath with this resolution to each of the member schools.

GEORGE URDANG, *Historian*

Report of the Editor of the American Journal of Pharmaceutical Education

The report of the Secretary-Treasurer covers the financial aspects of *The Journal*.

The paid subscriptions stand at approximately the same point from year to year. There have been less than a dozen cancellations during the past year due to deaths, retirements or changes of occupation, and these have been balanced by new subscriptions from those entering the teaching or industrial fields. The fact that the great body of subscribers renew their subscriptions year after year is a source of satisfaction.

As was stated last year, the wider distribution of *The Journal* due to the financial support given it by the American Foundation for Pharmaceutical Education, cut into the paid subscription list. Nevertheless, many board members and industrial firms have continued to pay the subscription price.

It is a disappointment that a considerable number of our own group do not make personal subscriptions. The Editor feels that he has done about all he can do to induce better support. If the Executive Committee or the Association as a whole would support a campaign to enlist every teacher in the colleges to come to the support of *The Journal,* it might have some effect. At least it seems to me it is worth trying. In a dental faculty, in which I was formerly a member, I learned that every faculty member was supposed to be a subscriber to their official educational journal, and in that faculty it was accomplished.

The various magazine agencies, both domestic and foreign, continue to make their appeals for commissions. My answer is always the same, namely, that in our limited field there is a question as to whether the agencies could increase the subscription list. Foreign agencies have been notified that, while no rates are given, the subscription rate to foreign subscribers has not been raised above the domestic. The interest in *The Journal* on the part of foreign agencies would seem to indicate that *The Journal* is becoming better known abroad.

No advertising has been sought. One book firm asked for four pages in the July issue but when the copy was sent, it could not possibly be placed on four pages. The firm asked to defer the printing to a later date. This raises the question as to whether, if we receive advertising, the price should be increased to more than $25 a page since the cost of printing has increased so tremendously.

The Editor was much concerned at the beginning of the year as to the possibility of a dearth of papers for the five issues which had to be cared for before the next annual meeting. There was a shortage of papers in the 1950 Teachers' Conference because of a number of panel discussions. Panel discussions are always very much worth while but they do not produce a series of papers suitable for publication. However, as time passed, Dr. Elliottt came to the rescue with a final paper by Dr. Remmers and A. J. Drucker

on "Predicting Success in Pharmaceutical Education". The always helpful Dr. George Urdang gave exclusive permission to publish his paper on "The Rescue of the United Stattes Pharmacopoeia by Organized American Pharmacy in the Eighteen Seventies" and also a scholarly study on "Science in American Pharmaceutical Education of the 19th Century" by Glenn Sonnedecker. The latter article will also appear as a reprint in a handsome booklet form and be given wide distribution.

Dr. Urdang and the distinguished scientific historians on the program of the 10th Anniversary of the American Institute of the History of Pharmacy gave *The Journal* exclusive publication of their papers in the July issue which is now in press. These papers will also appear as reprints in a booklet form. In addition, Dr. Ernest Little has writtten a history of the American Foundation for Pharmaceutical Education for the July number. All of which makes this issue an outstanding historical number.

There are a number of other contributors who helped to make the April and July numbers of *The Journal* of unusual interest, for which the Editor is most grateful.

It will be noted that each issue of *The Journal* carries abstracts of the minutes of the meetings of the members, the Board of Directors, and the Board of Grants of the American Foundation for Pharmaceutical Education. This began with a suggestion from Dr. E. L. Newcomb shortly before his death. The policy was continued by Acting Secretary Little and its continuance has been approved by Director W. Paul Briggs. It should be recalled that when the Foundation came to the support of *The Journal* it was suggested that each issue might carry items concerning the activities of the Foundation which might be helpful to its work. The Editor has felt that this could best be done by abstracting the minutes in such a way as to leave out routine matters but give a picture and a sympathetic understanding of the Foundation's work.

The maintenance of the mailing list of *The Journal*, other than the paid subscription list, has become a real task. This is due to the ever changing membership of the boards of pharmacy, the presidents and deans of colleges and universities, and the donors of the American Foundation for Pharmaceutical Education. Many duplications resulted and in some cases one individual was receiving

three, and in a few cases four copies of each issue. There was no way to catch these until copies began to come back or some individuals were kind enough to inform the Editor. The situation is being improved but the problem will always be present to a greater or lesser degree. It is mentioned here only as one of the Editor's problems.

Delayed publication has presented a greater problem. It has been due in part to the uncertainty and irregularity in getting the manuscripts on schedule and in part to delays in the print shop, over which the printer had no control. Getting the type set on schedule seems to be the bottle neck. All the Editor can say is that he is doing the best he can.

The Cumulative Index for Volumes 1-13 inclusive has been distributed to all paid subscribers. The American Council on Education stocked 500 copies at the headquarters in Washington and a reserve supply is in the office of the Editor at the University of Nebraska.

In closing this report, the Editor wishes again to express his gratitude to Drs. J. M. Dille and Heber Youngken, Jr. for their laborious and accurate work in compiling the Index; to Dr. Edward C. Elliott for making its publication possible; and to Prof. Zada M. Cooper for the compiling of the index to Volume XIV, thereby continuing her unselfish service of the past thirteen years.

RUFUS A. LYMAN, *Editor*

Report of the Delegates to the National Drug Trade Conference

The 1950 meeting of the National Drug Trade Conference was held at the Hotel Washington, Washington, D. C. on December 1, 1950. All ten national pharmaceutical associations holding membership in the Conference were represented by delegates. The American Association of Colleges of Pharmacy was represented by Hugo H. Schaefer, Chairman; C. W. Bliven and Ernest Little.

The meeting was called to order at 10:30 a.m., President Carson P. Frailey presiding.

In his opening remarks President Frailey spoke with appreciation of the increasing interest in the work of the Conference. He stressed its organization as a conference and not as a caucus and stated that in his judgment it should so remain.

Dr. R. P. Fischelis, Chairman of the Committee on Uniform State Legislation, reported that few legislatures had met in 1950 and, for that reason, none of the uniform state bills proposed by the Conference were enacted. He expressed the hope that during the coming year serious efforts would be made to have the states, which have not already done so, enact uniform measures concerning the regulation of the sale of drugs and medicines.

Mr. James F. Hoge presented a very comprehensive report of legislation then pending in Congress, with special emphasis on the Durham-Humphrey Bill.

He urged that this bill be carefully analyzed in respect to (a) its provision for federal control over prescription practice, (b) abrogation of the rights of the manufacturer to distribute their products through professional channels exclusively, if they so desire, (c) injection of federal power into the arbitration of the efficacy of drugs, and (d) power of the government to ban self medication and possibly offer state medicine as a substitute.

Dr. George D. Beal, Chairman of the Committee on Revision of Code and Regulations, submitted a report in which he recommended that the First Friday in December be set as the date of the annual meeting. Dr. Beal pointed to existing confusion regarding the number of affirmative votes required for the transacttion of the routine business of the Conference especially pertaining to the admission of members. He suggested that except on matters of policy which might bind an association member, a majority vote of three-fourths should prove satisfactory, the present unanimous vote provision being maintained on controversial matters of a fundamental nature.

Proposed amendments were presented covering these matters and held over for consideration at next year's annual meeting.

Under the heading of "Pharmaceutical Survey Developments", Dr. Fischelis reported on the progress made relative to the organization of a Pharmaceutical Manpower Commission. He stated that lists of registered pharmasists have now been obtained from 38 states. He stressed the need of a complete census of registered pharmacists, especially in view of the present international crisis, and expressed the hope that financial aid to bring such a project to completion will be forthcoming.

Mr. P. H. Costello spoke of the improvement in the attitude of university administrators toward pharmaceutical education. He stated that equipment and general facilities in our colleges are better today than ever before, but stressed the need of continued progress and stated that the profession of pharmacy has not assumed the responsibility which it should relative to its professional schools.

Dean Hugo H. Schaefer stated that the twelve recommendations of The Pharmaceutical Survey relative to pharmaceutical education are now the responsibility of the A.A.C.P. He pointed out that the recommendations for the establishment of summer seminars for teachers, the improvement of the four year program, initial steps for the establishment of a six year program, proposal of a plan establishing the degree of Doctor of Pharmacy for work in course, and the modernization of textbooks are all receiving careful consideration and that properly cautious progress is being made.

Dr. Ernest Little reported on the work and accomplishments of the American Foundation for Pharmaceutical Education. He pointed out that the Foundation is a creation of the National Drug Trade Conference and stressed the responsibility of the Conference in seeing that the Foundation grows to greater stature.

Dr. F. J. Cullen reported on "Trends in Medical Service Programs". He sketched briefly the work of the Health Information Foundation in this field, and solicited interest and support in promoting its program.

In the absence of Mr. Dargavel, Secretary Schlotterer discussed the "Drug Store Handling Costs Survey" and emphasized the need of promoting its program.

Mr. M. Mermey, Public Relations Director of the Bureau of Education on Fair Trade, reported on the accomplishments of the

Bureau to date. He discussed a series of advertising messages now being prepared and a sixteen page cartoon book to be distributed to consumers through retail pharmacists.

The report of the Resolutions Committee, dealing with nine important resolutions is attached as a part of this report for publication in the journal.

The officers elected for the ensuing year are, Carson P. Frailey, President; Frederick J. Cullen, Vice-President; and R. C. Schlotterer, Secretary-Treasurer.

Dean Schaefer was re-elected as the A.A.C.P. representative on the Executive Committee.

Your representatives believe in the objectives of the National Drug Trade Conference and feel that its accomplishments have thoroughly justified its existence. We solicit your continued support of its program and activities.

HUGO H. SCHAEFER, *Chairman*

Report on the American Foundation for Pharmaceutical Education

As an introduction to this report I should like to ask a question. It is this: What organization has made the most valuable contributions to the progress of pharmaceutical education during the past decade? To answer it with reasonable accuracy would require considerable study, but we believe the organization finally chosen for this distinction would be the American Foundation for Pharmaceutical Education.

Much of the real progress that has been made in pharmacy during the past decade has been brought about by the cooperative effort of all phases of pharmaceutical practice. The Foundation has in a large measure been responsible for this cooperation and, therefore, can take much of the credit for this progress. The work of the Foundation also provides a basis for optimism con-

cerning the future of pharmacy. We are sure it deserves our whole hearted support.

To refresh your memory and to bring you up to date on the subject, I want to give you a brief outline of the Foundation's organizational setup. It is a nonprofit corporation.

The members of the corporation are as follows:

1. **The Board of Directors, each director automatically becoming a member upon qualifying as a director and ceasing to be a member upon ceasing to be a director,**
2. **The following ten organizations:**

American Association of Colleges of Pharmacy
American Drug Manufacturers' Association
American Pharmaceutical Association
American Pharmaceutical Manufacturers' Association
Federal Wholesale Druggists' Association
National Association of Boards of Pharmacy
National Association of Retail Druggists
National Wholesale Druggists' Association
The Proprietary Association of America
National Association of Chain Drug Stores

The corporation is managed by a *Board of Directors* of not less than twelve and not more than twenty-five members. Twelve of the members are elected as follows: one each from the ten member associations together with the Chairman of the Executive Committee and the Secretary-Treasurer of the American Association of Colleges of Pharmacy. The remaining Directors are elected irrespctive of their affiliation with one or more of the member associations.

An *Executive Committee* is provided to exercise powers of the Board of Directors between meetings. It is composed of the President, the Vice-President, and three other Directors. It shall always contain at least one of the representatives of the American Association of Colleges of Pharmacy.

A *Board of Grants* is provided to make all allocations of funds or other gifts, subject to the approval of the Board of Directors. The five members of Board of Grants are elected by the Board of Directors and are chosen preferably from among persons who do not participate in any branch of pharmaceutical work.

From this brief outline it is seen that the American Foundation for Pharmaceutical Education is a corporation with members,

a Board of Directors, an Executive Committee, and a Board of Grants operating under a set of by-laws that definitely gives the American Association of Colleges of Pharmacy a preferred position in the organization.

As a director of the Foundation and the member of its executive committee representing the American Association of Colleges of Pharmacy I could give you a detailed report on each of the meetings that we have held during the past year, but I believe this is not desirable. The results of these meetings have been printed in the American Journal of Pharmaceutical Education and are available to all who may be interested. Instead I shall discuss three points in the past year's work that made it an outstanding year in the history of the Foundation.

The first of these memorable points is the passing of Dr. Edwin L. Newcomb, Secretary and Executive Director of the Foundation since its beginning. Only a few days before his death Dr. Newcomb was in my office discussing the work of the Foundation. He felt then that the Foundation needed more time and energy than he could give it, with the many other duties that he had undertaken. His enthusiasm for it was a great as ever, and he was continually planning for its future.

Dr. Newcomb carried the load in the work of the Foundation, and he carried it at a time when the load was heavy and through a period that was critical in pharmaceutical education. While others were talking about contributions to the Foundation he was out collecting them. The whole organization depended on his activity. His personality was the dominating factor in its operation. It is not difficult to realize, therefore, that Dr. Newcomb's passing produced a crisis in the work of the Foundation. The members and directors were very keenly aware of this and knew it was a significant event in the Foundation's history.

The meeting of the crisis in the affairs of the Foundation caused by Dr. Newcomb's death was a problem that must be solved and solved quickly. There could have been a period of inactivity that might have dealt a serious blow to the strength of the Foundation. That there was not such a period is due to the availability and the effort of one man, Ernest Little. With a background of keen interest in the work of the Foundation and one of its incor-

porators, he was appointed its Acting Secretary. I think you know how magnificently he carried on. His work as Acting Secretary is the second high point in this year's history.

The third and final point is one on which the future of the Foundation rests to a great extent. I refer to the appointment of the new Secretary and Executive Director. The Foundation has reached the stage in its development where it requires the full time of an unusually well qualified man to conduct and expand its activities. To find a man of the exceptional qualifications desired in one who is to maintain and to build on the structure which Dr. Newcomb and Dr. Little had so ably prepared was a real challenge to the Directors.

It has been observed often down through the ages that when an exceptional leader in a wholly worthy cause is needed, such a leader will appear. The Foundation needed an outstanding Secretary and Executive Director, a leader in its wholly worthy cause. W. Paul Briggs is the answer to that need. With a marvelous background for the position, he seems undoubtedly to be "the right man in the right place at the right time." We are fortunate in having him as a leader in the work of the Foundation.

In concluding this report I want to emphasize the fact that the American Association of Colleges of Pharmacy has a preferred position in the organization of the Foundation, a position that brings added responsibility and obligation. Let us make sure that we meet fully this added responsibility and obligation, giving Secretary and Executive Director W. Paul Briggs our wholehearted cooperation. The future of the American Foundation for Pharmaceutical Education has never seemed brighter than it does today under his direction.

HOWARD C. NEWTON

Director Representative the A.A.C.P.

Report of the Delegate to the Meeting of the American Council on Education, held in the Statler Hotel, Washington, D. C., January 19-20, 1951

The program included the following main topics:

(1) Emergency manpower problems.
(2) Economics of the current situation as it affects education.
(3) Education's place and responsibility in Civil Defense.
(4) G. I. Education—problems and future programs.
(5) Resolutions Committee report.

Emergency Manpower Problems

Dr. James B. Conant, President of Harvard University, discussed the proposed Selective Service Act on the basis of "The Case for Universal Military Service as Reported by the Association of American Universities". Dr. Conant discussed the following essential features of the bill:

(1) It is designed to amend the present Selective Service Act so that 18-year-olds can be drafted for a program of Universal Military Training and Service. (2) The persons so drafted will undergo four months of military training followed by 23 months of military service. All persons of this age group, except those with severe physical handicaps, will be drafted for Universal Military Training and service. The bill contemplates lowering the physical standards to make the law more universal. (3) The bill contains a provision that empowers the President to defer from service any group of persons. The President may also change the service period (23 months), but is not empowered to change the training period (4 months). The bill also gives the President the power to call any age group or groups.

(4) The bill provides for a feed-back into higher education of a maximum of 75,000 annually after the four months of military training have been completed. Subsequent to such higher education, those further delayed from military service will be called for such service or other service as the President may designate. This feed-back provision is to apply until 1954, the time at which the entire first group drafted previously will have completed its 27 months of military training and service. (5) The manner by which the feed-back group is to be selected

is not specified in the bill except that the President shall appoint a commission to develop a suitable method.

(6) Deferment is provided for ROTC students (although the bill does not cover the manner in which the future ROTC students are to be secured, it was announced that the Armed Forces are working on plans to select and earmark ROTC students while they are in high school, thereby preventing a shortage of officer material). (7) The bill is intended as a long time plan for partial mobilization (an Armed Force of 3.5 million) and is not to be considered as meeting an emergeneey for full mobilization.

Economics of the Current Situation as it Affects Education

This portion of the program was presented through an address by Leon H. Keyserling, Chairman of the Council of Economic Advisors to the President, and a panel discussion. Although this portion of the program dealt with generalities, a number of participants expressed the possibility that endowments from corporations may increase if the tax program of the government drew too heavily on corporation incomes. Further, institutional incomes may be increased through Federal funds paid for investigative work done by schools and colleges for the Federal government. Likewise, incomes may be augmented if the Armed Forces institute training programs in the schools and colleges is inaugurated or extended. On the other hand, building programs will probaply have to be curtailed because of the shortage of materials and there will necessarily be an intensification of economy in supervision, maintenance and expendable materials.

Education's Place and Responsibility in Civil Defense

John R. Nichols, Acting Director, Leadership Division, Federal Civil Defense Administration, and Livingston Blair, Vice-President for the Junior Red Cross, stressed the importance of educational institutions in providing instruction in civil defense and firt aid. The Federal Civil Defense Administration has already prepared manuals containing suggestions for planning, organizing, staffing, training, and operating civil defense organ-

izations. Manuals may be secured from the Superintendents of Documents, Washington, D. C., at a minimum cost.

G. I. Education—Problems and Future Programs

Mr. Olin E. Teague, a Member of Congress from Texas, delivered the main address on this subject. A panel discussion followed in which it was generally agreed that although the present programs for veterans were producing valuable results, there were several matters which should be corrected if benefits were extended further and if benefits were made available to persons involved in the bill changing the Selective Service Act. The matters to be corrected dealt primarily with administrative procedures of finances paid to the schools and recommendations were submittetd to a committee of the Council for consideration. In this connection, it was suggested that there should be more equitable fee allowances for state universities and other publicly supported schools.

Resolutions Adopted by the Council

The resolutions, although stated in somewhat general terms, favored the bill (S-1) to amend the Selective Service Act because it provides for student flow, some flexibility and little disruption for the student. However, the resolutions asked that the bill be changed to make the 75,000 feed-back a minimum and not a maximum as stated in the bill and that the feed-back be extended beyond 1954. Further, the resolutions requested that the bill be changed to provide deferment for students presently in colleges and universities and that the President direct their use after graduation to the best interests of the national welfare. Since the bill now drawn could continue universal military training indefinitely, a resolution was passed recommending the establishment of a civilian advisory commission to review the bill periodically and to determine its effectiveness and the need for its continuation.

NOEL E. FOSS, *Delegate*

Report of the Delegate to the 34th Annual Meeting of the American Council on Education Held in the Mayflower Hotel, Washington, D.C. May 4 and 5, 1951

The highlights of this meeting was the installation of Arthur Stanton Adams as President. The Friday morning session on May 4th was devoted entirely to the installation ceremonies. Dr. J. L. Morrill, President of the University of Minnesota and Chairman of the American Council on Education, served as the installing officer. Greetings to President Adams were extended by Everett N. Case, President of Colgate University, for the institutional members; by Althea K. Hottel, Dean of Women, University of Pennsylvania, for the member organizations; by Ralph E. Himstead, General Secretary, American Association of University Professors, for the faculties; and by Helen Jean Rogers, U. S. National Student Association, for the students.

Dr. Arthur S. Adams in his inaugural address discussed "The Role of the Council in American Education." He reviewed the activities of the Council during the past year and pointed out that one of the primary objectives was to keep the membership informed concerning the educational developments and the possible impacts of political, economic and social problems on American education. It was stated that the Council was instrumental in keeping students from being compelled to withdraw from college in the middle of a term to enter military service; further, that considerable study and effort have been given to the problem of wise utilization of manpower, which probably was the biggest problem of the year. This problem was studied from the standpoint of a long period of small, partial mobilization with particular reference to disposition of manpower concerning how many and where disposed; how to reconcile a continued flow of educated men as well as a continued flow to meet military requirements and the ROTC training units and the ROTC units as the main source of training officers.

In reference to a stabilized enrollment for meeting the nation's need for officers, as a result of the studies, recommendations and contributions made by the Council, plans were formulated which tended to stabilize the student situation and this situation does not now seem as serious as when first contemplated. As a matter of fact, it was pointed out that the Council and the colleges might well be proud of the accomplishment with reference to this serious situation. The Council is still engaged in intensive study of important aspects of the present war situation. In view of the need for a continued flow of manpower into the military services, plans are being formulated to make the period of military training one of continued growth for the individual. The problem of acceleration is likewise being studied. Finally, the Council is making every possible effort to see that the people understand the benefits and advantages of education. It is considered that the greatest educational need concerns the moral and spiritual attitude of our students. In other words, the greatest educational need today concerns problems of the spirit. The colleges seem to be more concerned with problems of brick, mortar, and bridges rather than with the moral and spiritual development of the students. It is hoped that the colleges will make every effort to remind students of honor, integrity, courage and hope and to give emphasis to the development of young men and women of character as the primary objectives.

Friday afternoon was given over to sectional meetings on present and potential activities of the American Council on Education. I attended the section dealing with research. The discussion leaders in this section were Dr. Allan F. Waterman, Director, National Science Foundation, and Dr. Leonard Carmichael, President of Tufts College. Dr. Waterman outlined some of the plans of the National Science Foundation but particularly with reference to (1) government policy with respect to long-time research; (2) government policy with reference to emergency research; (3) the degree to which graduate work can be supported by graduate fellowships. Apparently no definite policy had then been formulated, and suggestions were called for from the group. It was pointed out that after July 1, 1951, it was hoped that the Science Foundation would have operating funds available which would make it possible to embark on some work which the Foundation was ex-

pected to perform. Up to July 1, however, only funds for administratitve purposes were available. Anyone interested may address the Director, National Science Foundation, 901 16th Street, N.W., Washington, D.C. The telephone number is Sterling 0706.

On Friday afternoon at five o'clock a recepttion was held in the new quarters of the Council at 1785 Massachusetts Avenue This spacious five-story building was formerly an old residence and has been turned into office space. The former ball room on the second floor has been converted to a conference room for the Council and for other organizations having quarters in this building. This building was purchased and is to constitute the permanent headquarters of the Council and will also house some of the administrative offices of member organizations.

The dinner meeting was held Friday evening, at which time Dr. Arthur S. Fleming, President of Ohio Wesleyan University, Delaware, Ohio, and Assistant to the Director of Defense Mobilization, in the Field of Manpower, was the principal speaker. Dr. Flemming discussed economic conditions in the United States with particular reference to the problems connected with the war emergency. He emphasized the necessity for educating the people regarding the seriousness of the present conditions. He pointed out that the people must be made to realize that a long-time emergency is just as important, if not more so, than short-time emergencies. Likewise, the people must be made to realize that communism is so strong that we face the possibility of defeat. Consequently, it is essential that the feeling of complacency which now seems to prevail must be eliminated.

He likewise discussed the duties and functions of the centrai government. It was stated that we must fix the responsibility of the goverment to a definite department, namely, the Congress, and this department of the government must recognize and assume the responsibilities placed upon it. In turn this responsible department of the government must have agents to assist in carrying out the functions of the government and to these agents authority to act must be delegated. Furthermore, the responsible department of government with its agents must establish control in order to insure that whatever action is directed is carried out as directed. In this connection he pointed out that the citizens of the United

States must take a more active part in the government and that a very important function that the citizens must exercise is that of insisting upon action.

Dr. Flemming then discussed the progress made in production of war materials and stated that in his opinion we can justly point with pride to the progress that has been made. He stated that again the citizens can cooperate effectively, but in order to do that, they must pay in terms of dollars and sacrifice of utilities and things we use. He expressed the opinion that difficult times were ahead—that we must still fight the battle of inflation and that price and wage controls alone will not do the job. In this connection he pointed out that the Hoover Committee made approximately three hundred recommendations for improvement in governmental activities. He stated that fifty per cent of these had been put into effect but that many of them had not been put into effect because of the resistance of selfish interests. He appealed for a united front on the part of the citizenry since in his opinion this would do much toward stimulating action on the part of governmental agencies.

BERNARD V. CHRISTENSEN, *Delegate*

Annual Report of the American Council on Pharmaceutical Education, Inc.

The following constitutes the nineteenth annual report of the American Council on Pharmaceutical Education, Inc., to its sponsoring organizations, namely, the American Pharmaceutical Association, the National Association of Boards of Pharmacy and the American Association of Colleges of Pharmacy. It covers the period from April 30, 1950 to August 25, 1951. The financial statement attached hereto is for the last calendar or fiscal year and covers the period from January 1, 1950 to December 31, 1950, inclusive.

The Council and Board of Directors

Membership: The Council is composed of ten members who also constitute the Board of Directors. Each of the three sponsoring organizations elects and/or delegates three representatives to serve as members of the Council and the American Council on Education elects and/or delegates one representative to serve as a member. The present membership of the American Council on Pharmaceutical Education is as follows:

	Term Expires
Representing the American Pharmaceutical Association:	
George D. Beal, President, Pittsburgh, Pennsylvania	1956
L. D. Bracken, Seattle, Washington	1954
Robert P. Fischelis, Washington, D. C.	1952
Representing the American Association of Colleges of Pharmacy:	
B. V. Christensen, Columbus, Ohio	1956
Troy C. Daniels, San Francisco, California	1954
Glenn L. Jenkins, Vice President, Lafayette, Indiana	1952
Representing the National Association of Boards of Pharmacy:	
P. H. Costello, Secretary-Treasurer, Chicago, Illinois	1956
Robert L. Swain, New York City, New York	1954
Frank W. Moudry, St. Paul, Minnesota	1952
Representing the American Council on Education:	
Edward C. Elliott, Lafayette, Indiana	1954

Changes in Membership: No change in the membership of the Council occurred during the period covered by this report and no terms of the present membership will expire previous to the time the sponsor organizations will meet in annual convention in 1952.

Executive Officers of the Council: At the annual meeting of the Board of Directors held in Chicago, Illinois, on January 25, 1951, George D. Beal, Glenn L. Jenkins, and P. H. Costello were reelected to serve respectively as President, Vice President and Secretary-Treasurer of the Council for the ensuing year.

Meetings: During the period covered by this report two meetings of the Board of Directors have been held; one in Atlantic City, New Jersey, on May 6, 1950 and one in Chicago, Illinois, on January 25-26, 1951, immediately following the annual meeting of the Corporation which was held in Chicago, Illinois, on January 25, 1951.

Director of Educational Relations: Dr. Richard A. Deno has served as Director of Educational Relations on a full-time basis during the past twelve months. Dr. Edward C. Elliott who previously served as Acting Director, continued to do so on a full-time basis until January 1, 1951.

Resume' of Council Activities and Accomplishments: During the period covered by this report examinations for the purpose of accreditation or visitations for the purpose of counseling have been made at fifty-three institutions. Every College of Pharmacy in the United States, with the exception of the Western Massachusetts College at Springfield, has been examined by representatives of the Council, accompanied by representatives of the local State Board of Pharmacy. Some of the seventy-three institutions that have been examined have been visited more than once. The extent to which members of the Council and Boards of Pharmacy have given of their own time to this work has been a warrant of their interest in pharmaceutical education, and there is evidence that it has had a significant effect upon the thinking of University Administrations.

A revised listing of the seventy-one Colleges of Pharmacy currently accredited was published on January 26, 1951. This listing omits giving the classification of each institution but bears a statement that the classification will be indicated on a listing to be published on July 1, 1952. At the time the current listing was published thirty-nine institutions were permitted to refer to their accreditation as Class A, thirteen as Class B, Fourteen as Class C and five as Class Y4.

Questionnaire application forms for accreditation or the continuation thereof have been revised. Annual Progress Reports are being acquired from all accredited colleges on forms which the Council provided. Changes in accreditation policy, procedure and standards to be used as the bases of accreditation of Colleges of Pharmacy have been proposed and submitted to all interested parties for criticism and comment, all of which will promptly be given further consideration by the Council.

Finances: In addition to receiving the amounts which are being contributed annually by its sponsor organizatios the Council was the recipient of $20,000 from the American Foundation for

Pharmaceutical Educattion. The work of the Council necessitates on expending in excess of $25,000 annually. The itemized statement* of income and expenditures for the calendar year ending December 31, 1950 follows:

AMERICAN COUNCIL ON PHARMACEUTICAL EDUCATION

(Financial Statement—January 1 to December 31, 1950)

January 1, 1950—Cash balance on hand		**$15,785.27**
Receipts:		
Sponsors' contributions	**$1,800.00**	
Fees, inspection of new colleges	**1,862.77**	
Other sources—U. S. Treasury Refund	**27.93**	
American Foundation for Pharmaceutical Education	**20,000.00**	**23,690.70**
		$39,475.97
Disbursements:		
Rent and light	**None**	
Salaries	**$16,018.32**	
Council meetings	**1,814.32**	
Inspection expense	**6,653.24**	
Printing	**434.31**	
Office supplies and equipment	**543.28**	
Postage, telephone, telegraph, express	**274.10**	
Miscellaneous (bonds, duese, Social Security)	**138.00**	
	$25,875.57	
Cash balance on hand December 31, 1950		**$13,600.40**

P. H. COSTELLO, Secretary

A **Community Action Booklet** which tells how citizens in five communities took action to improve their local health conditions is available and can be obtained free of charge by writing to **Health Information Foundation,** 420 Lexington Avenue, New York 17, New York.

*It was deemed unnecessary to publish the *itemized* statement of receipts and disbursements which accompanied the report to the sponsors.—Ed.

The President's Page

At the Buffalo meeting the minimum five-year program, which was to begin in 1956, did not receive the vote of the necessary two-thirds of our colleges. A majority of our colleges (32-30), however, did approve of this minimum requirement. A very interesting sidelight was called to my attention by some of the old timers who fought for the minimum four-year program: In general the colleges which voted for the minimum five-year program were the ones who fought for the adoption of the Bachelor's degree in 1932 as the minimum requirement for graduation from a college of pharmacy. There is a striking similarity between the arguments advanced prior to the adoption of the four-year course and those at Buffalo. The arguments were heated and the feeling intense, yet with the vote now history, many of us have the feeling that our association is stronger that it has ever been.

Some of the representatitves of the colleges who voted for the five-year program went home with the thought that it is just a question of time until the program is adopted, and some with the feeling that the Association should have adopted the program, but since it did not, this would not change the plans they had for initiating the program at their colleges.

The work of the Association is carried out by means of its various committees and representatives. How well these function determine the accomplishment of the Association. Our colleges need the assistance of the Association in formulating curricula for the five-year program which some have adopted and others contemplating adopting soon. The reports of the Committee on Curriculum should be of value and further guidanace should come from this committee. It appears to be only a question of time until our Association adopts an extended program and preparation should be made for it when it materializes.

The controlled-experience plan which was presented to the Association by the Curriculum Committee did not receive the con-

sideration it should have; mainly, I believe, due to the fact that it was presented as a requirement for graduation. The Curriculum Committee tried to make it very clear that there was not room for this program in the present four-year course, nevertheless it seems that many of the college representatives were thinking in terms of the present four-year program. I would suggest that all colleges interested in controlled experience carefully study this report of the Curriculum Committee.

The Association should encourage experimentation in pharmaceutical education when careful plans are made and the students professional education is assured. The more information available for study, the better the prospect for wise experimentation.

The Committee on Visual Education is doing a fine job. The film shown in Buffalo demonstrated what can be accomplished by use of this medium and I hope the colleges will support the production of films which are suitable for teaching pharmaceutical processes. It is hoped that this will be discussed at the district meetings and the film used. If the film on Tablet Triturates is presented to college and board members and the criticism is advanced that pharmacists in general do not prepare these, it should be emphasized that the primary purpose of this particular film is to demonstrate what can be done by this medium. Suitable films can be prepared for teaching many of the pharmaceutical processes employed by the pharmacist.

I have called attention to the work of two committees as examples of the services of the various committees to the Association. I earnestly hope that all the pharmaceutical faculties will study carefully the reports of all our committees and representatives.

I have given considerable time and thought to the appointment of the committees and representatives for this year. I have confidence that these will function to the credit of the Association and that through their constructive efforts we will have a successful Association year.

J. Allen Reese, *President*

The Editor's Page

One hundred and thirteen of the 338 students who applied for admission to the college of pharmacy of the University of Illinois, for the current academic year, presented credit for college work. Eleven were holders of degrees. This represents a trend that has been going on for years with an ever increasing rate, and with an unusual acceleration of pace in the last decade. It means that students, preparing for the study of pharmacy, are taking the subject of entrance requirements for the study of pharmacy into their own hands.

A recent report by the Chairman of the Executive Committee, giving the enrollment in schools and colleges of pharmacy for the first term or quarter of 1951-52, states that there are now seven schools requiring more than four years of college work for graduation in pharmacy. They are: the University of Southern California (6 yrs.); Montana State University (5 yrs.); Ohio State University (5 yrs.); Oregon State College (5 yrs.); University of Puerto Rico (5 yrs.); State College of Washington (5 yrs. optional); and the University of Arkansas (5 yrs. optional).

The University of Arizona was not mentioned in the chairma's report but its action is mentioned here in order to make it a matter of record. Beginning with the fall enrollment in September 1951, Arizona required 32 college credits for entrance to the college of pharmacy. These credits must include English composition (6 hrs.), general chemistry (8 hrs.), mathematics, algebra and trigonometry (4 hrs.), general zoology (4 hrs.), and botany, survey of the plant kingdom (4 hrs.). The student must have made an average of 3 or better, in the 32 credit hours.

The University of Florida should not be overlooked in what has been done there. The requirement for entrance to the college of pharmacy has been increased by the addition of one summer school work of college grade. No statement has come to the writer, from Florida, as to the significance of this requirement, but recalling how medical educators increased pre-medical re-

quirements, it is not difficult to surmise. Some may consider this action as a trifle. Far from it. It is exactly what medicine did in going from a 4-year high school to 90 college credits, before World War II, for the study of medicine. The student's point of view was that if he had to complete three years of liberal arts work to study medicine, he might as well take a fourth year, round out his college course and obtain a liberal arts degree. That is what many of them did and with no regrets. It may be that if Florida has adopted the policy of increasing the prerequisites by easy stages, that may mean that down Florida way they are smart.

Since the Buffalo meeting, it has been reported from a number of areas that many retail druggists, who had opposed the longer program for the education of the pharmacist, did so on the supposition that the professional course would be increased to more than four years. They have said that if they had known the time was to be used to educate the student for citizenship and to better prepare him for the study of professional courses, they would have been for it.

This confusion will continue as long as we persist in talking about five and six year courses in pharmacy instead of clarifying our real objectives, namely, to educate the student for citizenship and prepare him more adequately to meet and solve the problems of professional study and practice by requiring two years of college preparatory to entrance upon professional study.

It is refreshing to see certain schools introducing new ideas and new plans for improving the educational process. A plan that will be followed with interest is the Co-op Plan recently instituted at the school of pharmacy of the University of Georgia (See Georgia, Notes and News). It is a state-wide plan in which other colleges and the practicing pharmacists may have a part. It will certainly go far toward publicizing pharmacy throughout the school system of the state as a worthwhile field for the superior student to risk his talents in. It might be a more effective way of obtaining desirable students than by the use of guidance leaflets now in use or being planned.

The present demonstration of the apparent lack of moral standards under the present national administration is indicative of the need of mixing a little religion with our civic, business and professional practices. Dean Ralph W. Clark of the University of Oklahoma is doing something about it. In the orientation course in the college of pharmacy new students have been hearing lectures on Ethics. This portion of their course was introduced by Dr. J. Clayton Feaver, professor of the philosophy of ethics and religion, who spoke on "Religion and Ethics in the Professions".

Dr. Feaver said that the basis upon which we approach the matter of professional ethics is the assumption that man feels within himself both a moral awareness and a moral obligation. It is this deep rooted feeling that makes the matter of any professional expression of ethics significant. Except the individual realizes that a sound sense of ethical evaluation penetrates the whole of his thought and action, he is impotent actually to make an adequate moral response in the area of his particular professional life. In other words, ethics, as likewise religion, is a fundamental part of the human existence and must be carefully considered.

This introductory statement, according to Dr. Feaver, sets the background for the ethics of a profession. In a real sense professional ethics is nothing else than a specific application of man's total moral awareness and discipline. As a specialist, moreover, it becomes doubly urgent upon him to see that his total ethical code is applied. He poses before his fellow men as a responsible specialist and therefore he is trusted by them as being such. The obligation under which this places him is tremendous. He can in no sense keep faith with his fellows unless to the very best of his ability he meets this obligation to the full.

Dr. Feaver's lecture was followed by lectures and discussion of professional and business ethics. The A.Ph.A. Code of Ethics was discussed in detail.

The series was concluded by a lecture by Rabbi Ferdinand M. Isserman of St. Louis. His subject was "Professional, Business and Political Ethics". He told eager students during religious emphasis week at the University, that the public respected pharmacists. He pleaded with the students not to betray this

trust in a world in which there are many mistrusts and suspicions as people must have confidence in pharmacists' integrity. He added that people's faith in a pharmacist is the pharmacist's greatest asset. He also urged students to try to help as individuals to clean up the present political corruption found at all levels. He fears most the rather apparent fact that people who are known as good people frequently overlook or submit to political corruption.

We commend Dean Clark and his co-workers for the effort they are making to maintain the integrity of our profession. They are getting at the roots of this situation when these basic principles are presented to our students at the beginning of their professional studies.

For a decade and a half the Editor has been yearning for a commendatory word that the publication of news items from the colleges in The Journal is helpful and worthwhile. The word came in a letter under date of October 3, 1951, from Dean Elmon L. Cataline, of the University of New Mexico, from which we quote the following:

"As a non-Association school we are exceedingly happy that you will print news of our activities. *I find a great deal of useful information in the news section of the Journal*".

In editing the Journal, we have at no time made a distinction between member and non-member schools in printing news. Pharmaceutical news is pharmaceutical news irrespective of where it originates. Educators are just as much interested, and sometimes more so, in what is going on in the new schools as in older ones and sometimes the news is more stimulating. It is like injecting new blood into a faculty that has become hide bound through tradition. We have tried to make the Notes and News section a history of pharmaceutical education in this country since the beginning of the publication of The Journal in 1937. Dean Cataline's comments are commendatory to the Collaborators of the Journal who have been responsible for the tedious work which has made the historical record as complete as it is.

Grand Secretary, Rand P. Hollenback, of Phi Delta Chi, has announced that the Alpha Xi chapter of the fraternity at Ferris Institute has voted unanimously to convert the time honored "hell week" to constructive channels of community service. It was decided that each person should contribute to the blood bank campaign. Members of the chapter went in a group to the blood bank in Big Rapids on September 18.

In the mind of the Editor, the action of this group of young men in abolishing those barbaric practices, which tend to make even a Presbyterian elder in the making, hate his "brothers" for the rest of his life, and directs his blood into the blood channels of those who must have it in order to live, makes the Alpha Xi chapter of Phil Delta Chi, *The Chapter of the year of 1951.*

The passing of Prof. Goldweg of Long Island University and of Dr. Davis of the University of Illinois and of Dr. Wimmer of Columbia, cast a shadow over the Christmas season for their families and for all of us who knew them and admired them and loved them. This is the time to remember that the Easter time lies but a few weeks ahead. Then we will be freshened by the promises which Easter brings. Then the silvery lined clouds will be riding high and the birds will be flying north again.

RUFUS A. LYMAN

The result of the mail ballot for the election of officers of the American Pharmaceutical Association for the coming year has been announced by Secretary Fischelis. They are as follows: President-Elect, R. Q. Richards of Fort Meyers, Florida; First Vice-President-Elect, Thomas D. Rowe, of Ann Arbor, Michigan; Second Vice-President-Elect, Charles F. Lanwermeyer, of Waukegan, Illinois. Members-Elect for the Council for a term of three years are: Walter M. Chase, of Detroit, Michigan; Henry H. Gregg, of Minneapolis, Minnesota; and George A. Moulton, of Peterborough, New Hampshire.

These officers will be installed at the annual convention in Philadelphia, the week of August 17, 1952.

The Secretary and the Treasurer are elected by the House of Delegates for three-year terms.

Notes and News

Alabama Polytechnic Institute.—The new pharmacy building is nearing completion and will be ready for occupancy during the second quarter. It will have complete new equipment.—Dr. Byron B. Williams, Jr., has been named head of the department of pharmacology. He received his doctorate from the University of Florida. The title of his thesis was "A Study of the Toxicity and Local Anesthetic Properties of Some Derivatives of Cumic Acid".—Drs. Williams and T. D. Fields have been elected members of Rho Chi, and the latter a member of Phi Kappa Phi.—Herbert Nelson, president of Rho Chi, has been elected president of the Auburn Chapter of Tau Kappa Alpha, national honorary forensic fraternity.—Prof. G. W. Hargreaves spoke recently to the Columbus Georgia Drug Club on "The Pharmaceutical Survey and the Obligations of the Retail Pharmacist to Pharmaceutical Education".—Dr. George Hocking, formerly of the University of Mexico, is now head of the department of pharmacognosy.

University of Buffalo.—The total fall enrollment, including 6 graduate students, is 332, the largest on record.—At a Fellowship and Scholarship Awards Convocation on November 13, seven grants were made from an anonymous fund; four from the Arner Company; one from the Borden Foundation; three from the American Foundation for Pharmaceutical Education; one from the Burroughs-Welcome Fellowship Fund; two from the Eli Lilly Fellowship Fund; and two from the Wildroot Fellowship Fund.—Mearl D. Prichard, a member of the pharmacy staff has been reelected president of the Erie County Pharmaceutical Association.—In observance of National Pharmacy Week the students arranaged an open house for their parents and the general public on October 24. The program included working demonstrations in all practical phases of the curriculum.

University of Colorado.—Dean Charles F. Poe was granted leave of absence for the fall semester of 1951. Accompanied by Mrs. Poe, he spent three months in travel and study in Europe. He spent some time at the Pasteur Institute in Paris where he did some special work on a biological research problem. He attended three international scientific meetings on the continent: the International Congress of Pharmacy held in Rome; the International Congress on Foods, and the International Congress of Industrial Chemistry, both of which were held in Paris. He also attended the meetings of the French Pharmaceutical Society and the French Society of Microbiology which were held in Paris. The Poes, while in Paris, also visited the college of

pharmacy of the University of Paris which has an enrollment of 3000 students, and while in Rome, they visited the college of pharmacy of the University of Rome which has an enrollment of 2000 students.—During Dean Poe's absence, Dr. Norman F. Witt served as acting dean.—Mr. Mont H. Guthe, a graduate of the University of Montana, has been appointed instructor in pharmaceutical administration. Mr. Guthe is a registered pharmacist who has had wide experience in drug store management and a number of courses in business administration. He will work for a master's degree in pharmacy while teaching courses in pharmaceutical accounting and merchandising.—The student branch sponsored a display in the window of the National State Bank in down town Boulder during National Pharmacy Week. The theme of the display was "The Pharmacist Helps in the Progress of Health".—Rho Chi held initiation services in Denver for eleven new members in November. Major O. P. Howard, director of research at the Fitzsimmons General Hospital in Denver was the guest speaker on the occasion.

University of Connecticut.—The pharmacists of the state are contributing to a fund for the establishment of a Hugh P. Beirne Memorial Library in the new college of pharmacy building at Storrs. Mr. Beirne was one of Connecticut's distinguished pharmacists and for a long time before his death, operated a retail store in New Haven. He was also secretary, for a long time, of the state's Pharmacy Commission, when the secretary was the chief functionary of the Commission prior to the creation of the director's post.—Two pharmacy students are among the 34 University of Connecticut students whose names will appear in the forthcoming annual issue of "Who's Who Among Colleges and Universities".—Dr. E. C. Elliott and State Pharmacy Director Felix Blanc, inspected the college in December.—Prof. N. W. Fenney is chairman of the Connecticut Committee on Foods, Drugs, Cosmetics and Devices.—William J. Kelleher of the class of 1951 was awarded the Kilmer prize at the annual meeting of the A.Ph.A. at Buffalo. The subject of the prize winning paper was "Alkaloidal Extraction Studies of Ergot". Mr. Kelleher is now at the University under an Eli Lilly Company research fellowship for graduate studies.—When the college opened its doors on September 19, for nearly 300 students, it became the only pharmacy school in the northeast offering its students the advantages and facilities of campus life. The first candidates for the doctorate with pharmacy as a major, began their studies last September. Twenty-six pharmacy students were among the total of 143 university students receiving scholarships for the current year.

Detroit Institute of Technology.—Prof. Esten P. Stout has retired as dean of the college of pharmacy having given forty years of service to the institution. Dean Stout is president of the Michigan Academy

of Pharmacy, a past president of the Michigan Branch of the American Pharmaceutical Association, and an active member of the legislative committee of the Michigan State Pharmaceutical Association. He has received an honorary certificate of registration from the Michigan State Board of Pharmacy, and a life membership in the Detroit Y.M.C.A.

Duquesne University.—Martin Blake, B.S. in Pharmacy, Long Island University, M.S. from Rutgers and Ph.D. from Ohio State, has been appointed as assistant professor of pharmaceutical chemistry, and Mrs. Chester Manasterski, B.S. in Pharmacy, Wayne University, B.Ph. from the University of Toronto, and M.S. from the University of Buffalo, is an additional instructor in pharmacy.—Dr. J. A. Zapotocky prepares a monthly article, "Keeping Pharmacy Wise" for the Pennsylvania Pharmacist. In November Dean H. C. Muldoon attended a meeting of 50 educators and scientists at East Orange, New Jersey, as a guest of the Thomas A. Edison Foundation to study ways of attracting more students to the study of science and engineering.—On December 1, women graduates of the school of pharmacy since 1928 were dinner guests of the Lambda Kappa Sigma sorority.

Ferris Institute.—The enrollment totals 352 in pharmacy for the fall semester.—Since the fire of February 21, 1950, instruction is being carried on in temporary quarters. One new building has been completed and is now in use and two more are under construction and will probably be ready for occupancy early in the new year. The administration building, which will house the library, will be completed next summer.—Budget allocations have been made already for additions to the staff in pharmacology, pharmacy, and chemistry, effective in September 1952. Applications should be made to Dean Ralph M. Wilson, Ferris Institute, Big Springs, Michigan.

University of Florida.—The first change in the new curriculum took place with the opening of the fall semester when pharmaceutical arithmetic was made compulsory in the freshman instead of the senior year.—There are now 30 graduate students majoring in pharmacy.—Dr. L. G. Gramling visited chapters of Gamma Sigma Epsilon in the southeastern states in October as one of his duties as national president of the society.—McKesson and Robbins presented their course in Drug Store Selling to the juniors and seniors in November.—Betty L. Lanakford, M.S., Florida, and A. W. Reid of Butler University are teaching assistants and Jack T. Bryan, Thaddeus S. Grosicki, Herbert M. Gross, Ralph S. Levi, and John E. Wintter are graduate assistants.—Byron A. Barnes and Henry D. Johnson are newly appointed Fellows of the American Foundation for Pharmaceutical Education.

University of Georgia.—Dean Kenneth L. Waters recently addressed the law students at Emory University on the practical side of drug

law enforcement.—The November program of the student branch consisted of a panel discussion on opportunities for employment in the pharmaceutical fields.—The Rho Chi Society, having observed a need and a lack of knowledge of proper parliamentary procedures by pharmacy students and members of the profession, have undertaken a study of Robert's Rules of Order. They have acquired an instructor and are holding informal discussions and practical sessions in order to increase their knowledge and create interest in and respect for parliamentary procedures. The Rho Chi Society elected one new member at the October meeting.—A Co-op Plan, similar to the plan at Georgia Tech, has been approved by the board of regents for the school of pharmacy. The plan combines college study with practical experience and makes it possible for the student to get his experience and a degree within four calendar years. His work at the university will alternate with full time work in a drug store. A total of nine quarters is spent on the campus with seven spent in full time drug store work. Enrollment in the plan enables a student to take one non-professional course during the quarters he is away from the campus. Such courses can be taken in other Georgia colleges or by correspondence. The plan also provides that students may be grouped in pairs so that one is working while the other is in school, thereby providing their employer with a student intern or apprentice at all times. The plan also permits the student to be nearly self supporting while enrolled in school. This will serve a real need if and when the time comes that economic conditions approach the level of the pre-war period. The plan was presented recently to the Georgia pharmacists attending the annual seminar on the campus and was enthusiastically approved.—Kappa Psi, Rho Chi, and the student branch joined in sponsoring a Christmas party for twenty underprivileged children. It was held at the Y.W.C.A. on Decmeber 7.—Fourteen students were pledged to Kappa Psi in December.

Howard College, Birmingham.—Thirty-seven students visited the Lilly plant in November.—President E. W. Gibbs, of the N.A.R.D. spoke on "Fair Trade" before the student branch on November 6.—The October issue of the Kentucky Pharmacist carried an article, "Dr. C. Lewis Diehl—The Great Southern Pharmacist" by Director C. Lee Huyck.—A senior, Mr. Logan Key, has been elected to Omicron Delta Kappa, honorary leadership fraternity for men on the Howard campus.—Junior and senior pharmacy students were guests of the Birmingham Retail Druggists Association's annual birthday party held at the Mountain Brook Club in December, honoring President E. W. Gibbs.—Dr. Edward H. Gardner, formerly professor of economics at the University of Wisconsin, conducted the McKesson Robbins Drug Store School in the college auditorium on December 4.—Ralph Stone, who was the first pharmacy resident at Vanderbilt University Medical Center following

his graduation last January, has been appointed chief pharmacist of that institution.

Idaho State College.—Rho Chi initiated six new members at its first semester initiation. Rev. H. W. Hebblewaite of the Pocotello Methodist Church was the guest speaker.—Phi Delta Chi initiated 8 new members during the fall months.—Mr. Dale Tanner, formerly of the University of Colorado, has been added to the pharmacy stall as instructor and is directing the new dispensing laboratory which is fully equipped in every detail.—Parke, Davis & Company has placed a complete display of their products in a modern showcase in the medical-pharmacy library.—A new Warburg Rotary Respirator has been acquired for use by the departments of physiology and pharmaceutical chemistry.—The department of micro-biology has completed the equipping of the new industrial laboratory for the testing of antibiotics.—The class in biologicals used National Pharmacy Week as a theme for their six window displays.—Dean E. E. Roscoe and Prof. Rowland have given talks to District No. 3 meetings of the Idaho Pharmaceutical Association. Members of the pharmacy staff are also named as speakers in the weekly series scheduled for the community by the Pocatello Chamber of Commerce.—Robert Gerke, a senior, has been awarded a $200 scholarship by the Idaho Elks Lodge for his outstanding scholarship and contributions to the activities of the college.—Five students, one senior and four juniors, have been awarded American Foundation for Pharmaceutical Education scholarships.—Dean Roscoe and Prof. Rowland attended the Nevada Pharmaceutical Convention at Las Vegas in October.

University of Illinois.—American Foundation for Pharmaceutical Educational Fellowships have been granted to three graduate students pursuing advanced work in pharmacy; one for the doctorate and two for the master's degree.—The Board of Trustees found it necessary to reject all bids on the proposed East Unit of the Dental-Medical-Pharmacy building, due to the fact that all bids exceeded the monies appropriated. They authorized change of plans to bring the cost within the appropriation and the solicitation of new bids. Authorization was given for the clearing of the entire block of all dwellings so construction can start in the spring. The plan changes omit a large auditorium, lecture halls and offices but provide for laboratory areas badly needed at the present time. The Board of Trustees have found it necessary, because of the large number of applicants from Illinois citizens and the crowded conditions, to limit registration in the professional colleges to natives of Illinois. Legal voting residence in the state established by a year's residence, has been subordinated to evidence indicating previous permanent residency.—Mr. Paul Sang, vice-president of Humiston-Keeling Company, wholesale druggists of Chicago, has been appointed to a five-

year term on the Advisory Committee of the college of pharmacy.—A memorial service for the late Dr. Hugh L. Davis, long time member of the faculty, was held on December 15, 1951.

State University of Iowa.—Osco Drug, Inc., Chicago, has set up three 3-year scholarships consisting of resident school-year fee ($176.) and offered triennially to each of three students considered by the faculty to be worthy and needy and who have completed the first year in course with a minimum grade point average of 2.30. The scholarships continue the students' third and fourth years provided the above requirements as to worthiness, need and scholarship are met.—The Bristol Laboratories, Inc., make an annual award to a fourth year student who, during his college life, has made the greatest contribution through extra-curricular activities, as determined by a faculty vote.—Terry E. Jockley and Maurice W. Gintz have been initiated into Alpha Lambda Delta and Phi Eta Sigma, respectively, both of which are nation honorary fraternities for freshman students who have attained a minimum grade point average of 3.5 during the freshman year.—The student branch again has a 100% membership for the current year.

University of Kansas.—Dean J. Allen Reese attended a meeting of the A.A.C.P. Executive Committee in Chicago in November.—Dr. Duane G. Wenzel recently addressed the student branch on "Opportunities in Pharmacologic Research".—The branch installed a display during Pharmacy Week in down town Lawrence in the Round Corner Drug Store.—Mr. Tom Bull of the Armstrong Cork Co., gave an illustrated talk on prescription containers to the senior dispensing class recently.—A new course in chemotherapy is being given by Dr. Wenzel.

University of Michigan.—The fall semester began with a total enrollment of 192.—Two former teaching fellows, Floyd Grolle and Joseph Sinsheimer, have been added to the faculty as instructors. Paul Norris has been advanced to the rank of assistant professor.—Dean Rowe served as chairman of the A.A.C.P. Resolutions Committee at Buffalo.—Senior Jack Scruggs is the recipient of the 1951 Borden Award.—Senior John Kathe is the president of the Michigan Union for the current year. This is the first time a pharmacy student has been elected to this position.

University of Minnesota.—On December 6, 1951, five seniors were initiated as members of the Zeta Chapter of Phi Lambda Upsilon. One faculty member, Dr. I. M. Kalthoff, was given national honorary membership.—Prof. Bradbury Franklin of McKesson & Robbins, Inc., conducted a sales training school for the junior and senior classes on October 25.—Dean Charles H. Rogers was the principal speaker at a convocation during the 75th anniversary celebration of the college of pharmacy at the University of Michigan. He was awarded the honorary

degree of Doctor of Science at that time.—During the N.A.R.D. Convention in Minneapolis on October 18, achievement awards for outstanding service to pharmacy were presented to Dr. Frank W. Moudry of St. Paul, Dr. J. W. Dargavel of Chicago, and Dean George E. Crossen of Oregon State College. They were presented by Mr. Ray J. Quinliveen, chairman of the University Board of Regents.—Dr. Marion Thompson, of Stamford, Connecticut, who was also to receive an award, was delayed by an automobile accident while enroute to Minneapolis and arrived too late for the ceremony. However the award was presented to him on the evening of the same day at a special faculty dinner. The award in each instance consisted of a gold medal and an individually worded scroll.—Librarian Mary Wolfe has received a promotion which took her to the main library and she has been succeeded by Miss Tordis Votsaug.—Myron Buchdahl, who received the doctorate in August, has been appointed an assistant professor at the University of Arizona.—Robert M. Leonard who plans to receive the Ph.D. degree during the present school year, has been appointed as assistant professor at George Washington University, effective September 1, 1951.

University of Mississippi.—In December, Dr. J. L. Voigt addressed the Rosedale, Mississippi high school on "Opportunities in the Profession of Pharmacy". At this school a "Career Day" is held every two weeks when a representative of a particular field acquaints the students with opportunities in his field. In September, Dr. Voigt spoke to the group known as "The Young Pharmacists of Wisconsin", at Milwaukee, on the theme "Pharmacy Ten Year Hence".—The Kappa Psi fraternity has presented an attractive plaque to the school on which will be engraved, annually, the name of the student who attains the highest scholastic average upon the completion of the junior year.—Dean E. L. Hammond and Prof. and Mrs. W. W. Johnson attended a meeting at Cleveland, Mississippi, in December, of District No. 3 of the Mississippi State Pharmaceutical Association of which Mrs. Johnson, an alumna of the school, is secretary. Mrs. Johnson is assisting in the laboratory courses in pharmacy this year.—The Phi Delta Chi fraternity installed a National Pharmacy Week display, featuring the drugs of the Bible, in an Oxford pharmacy.

Montana State University.—James E. Woomer, B.S., has been appointed as an assistant in pharmacology and dispensing.—Mr. Raojibhai Patel, B.S., University of Bombay, India, is completing his work for the master's degree. Early in 1952 he will leave for Bombay where he is to work in the Abbott Laboratories.—Prof. E. B. Dugan of the school of journalism spoke recently to the pharmacy students on "The Advertising in the Retail Drug Store".—The student branch is sponsoring a trip east for junior and senior students to visit various manufacturing plants.

University of Nebraska.—At a recent meeting, thirteen new members were initiated into Kappa Psi; one into Kappa Epsilon; and two into Rho Chi.—At the December meeting of Rho Chi the chapter voted to continue its financial support of the American Institute of the History of Pharmacy. The speaker of the occasion was Mr. Hugh D. Bryan of the pharmacy staff, who spoke on "Peoples in the Pacific Islands". Mr. Bryan spent two years among these peoples during World War II.—Dean and Mrs. J. B. Burt attended the Remington dinner, honoring Dean Hugo H. Schaefer, in New York on December 11.—Marvis H. Malone, a graduate of the college of pharmacy and now a graduate student majoring in pharmacology, has been notified that his poem entitled "How Curious . . . " has been chosen by the National Poetry Association to appear in the **Anthology of College Poetry**, which is published annually and represents the outstanding poems of college men and women throughout the country. In 1947 he was presented the **National Scholastic Magazine's** short story award.—Dr. Arthur Grollman, professor of medicine and chairman of the department of experimental medicine of the Southwestern Medical College of the University of Texas, gave several lectures on the university campus on October 30-31. He discussed his extensive experimental studies on removal of the kidneys and the relation of the kidney to hypertension. He also discussed individual research problems with faculty members doing research in the biological fields. Dr. Grollman's visit was sponsored jointly by the department of physiology and pharmacology of the college and the University of Nebraska Research Council.—Five awards of scholarships from the American Foundation for Pharmaceutical Education and six by the Lincoln Drug Company were granted to juniors and seniors for the current academic year.—Dr. Lewis D. Fink, B.S. in Pharm., 1937, and M.S. in pharmacology in 1939 and later Ph.D. in pharmacology, University of Minnesota and M.D. from Marquette University, gave a preview of a paper he had prepared for the October meeting of the American Society of Pharmacology and Experimental Therapeutics at Omaha, before the combined seminar group in pharmacology, pharmacy and pharmaceutical chemistry on October 12.—At the same meeting, Dr. Harald G. O. Holck presented a paper entitled, "The Influence of Experimental Hypo- and Hyper-Thyroidism on the Acute and Delayed Effects of Prepallynal or Nostal on the Albino Rat". Ira W. Hillyard collaborated with Dr. Holck on this experimental study.

University of New Mexico.—The student branch sponsored a three day pharmacy open house in observance of National Pharmacy Week.—Dr. and Mrs. R. P. Fischelis and President Don Franke called at the college on their way to the district meeting of the A.Ph.A. at Los Angeles.—Dean Emeritus and Mrs. Charles H. Stocking of the University of Michigan visited the college recently on their way to the west coast.

—Homecoming will feature the first pharmacy alumni round-up on November 16-17, on the occasion of the University of New Mexico-Brigham Young University football game.—McKesson-Robbins held a sales school at the college on October 27.—The faculty and student body attended a program given by the state board of pharmacy on November 1. The subject under discussion was internship and licensing regulations.

University of North Carolina.—Joseph E. Hatcher is the first recipient of the M. L. Jacobs Memorial Award for excellence in fundamental organic pharmaceutical chemistry and Eleanor G. Bullock is the winner of the 1951 award for freshman academic excellence. Both of these awards are sponsored by the local chapter of Rho Chi. The Rho Chi chapter has elected four new members.—Dean E. A. Brecht addressed a joint meeting of the Hunderson Drug Club and the Vance County Medical Society, recently.—Mr. E. C. Daniel of Zebulon, a director of the North Carolina Pharmaceutical Research Foundation, is the recipient of the **"North Carolina Pharmacist of the Year 1951 Award".**

Ohio Northern University.—Myron Hanna, instructor in physiology and pharmacy, has been retired and Mr. James Hillman has been added to the staff as instructor in pharmacology. Mr. Hillman has been pursuing work at the University of Minnesota for the doctorate, and will continue to do so.—Theodore Schlosser has resigned in order to operate his own pharmacy which he purchased in Washington State.—Acting Dean Albert C. Smith was advanced to full deanship as of November 3, 1951.—An addition is being constructed at a cost of $12,000 to the pharmacy building. The first floor will be used for student lavoratories and the second floor will house small animals used in the various biological courses.—A new laboratory for bactriology-biochemistry has been in stalled with all essential equipment for the work. It represents an investment of over $15,000. New desks have been installed in the physiology-pharmacology laboratory with gas and electrical connections. Each desk is equipped with an electrical kymograph and essential small appartus. An extension kymograph for demonstration purposes has been added and plastic models and new small animal cages have been purchased. These additions represent an investment of $12,000.—The student branch has been reorganized with a membership of 125. As a project, the branch chose to decorate the interior of the pharmacy building. They have completed the project. The Northwestern Ohio Druggist Association gave $150 toward fluorescent lights for the prescription laboratory. To this the branch added sufficient funds to complete this project. Mr. Argyle Davis, president of the Northwestern Ohio Druggist Association, gave the branch sixteen, four-foot fluorescent lights which now illuminate the halls and stairways. A new bulletin board and new fire fighting equipment has been installed and a new electric clock, the gift of one of our students upon graduation, has

been placed in the hall.—In November Dr. Elliott, Dean Jenkins, and Mr. Ford reinspected the school and gave many helpful suggestions for improvement.

Ohio State University.—Drs. A. B. Colby and F. W. Bape attended a course, The Medical Aspects of Nuclear Energy, at the Army Medical Center, Washington, D. C., July 9-13.—Parke, Davis & Co. have granted $3000 for the establishment of two research fellowships for 1951-1952 under the direction of Dr. J. W. Nelson.—Drs. Colby and Bape were on O.R.C. active duty from August 19 to September 2, with 449th General Hospital Unit at Fort Miles, Delaware.—Lt. Col. William O. Krause assumed his duties as PMS & T (Pharmacy) in June. Col. Krause replaces Lt. Col. H. D. Roth who received the Ph.D. degree in June 1951, and is now on duty in Washington as special adviser in the field of pharmacy to the Chief of the Army Medical Corps. Col. Krause is also pursuing graduate study toward the Ph.D. degree.—Dr. Loyd E. Harris has been recalled to active duty as Lt. Col. in the Chemical Corps and is now on military leave from the University. At the present time he is stationed in the Medical Laboratory at the Army Chemical Center in Maryland.

University of Oklahoma.—The membership of the alumni association has been increased by 103 new members, the first year's membership to be with the compliments of the association.—In the new curriculum more emphasis is being placed on commercial pharmacy and new drugs. The Drug Travelers Institute has one of its constitutional objectives, "To aid the College of Pharmacy at the Oklahoma University". To foster this objective, the Travelers have arranged with Dean Clark to have a member or members of their organization participate in teaching seniors drug store front end merchandising. They will have charge of the class one period each week.—Dale Cronk, who received the master's degree at the State University of Iowa last summer, is a new member of the pharmacy staff.—An air-conditioned animal room has been completed on the third floor, next to the newly completely equipped pharmacology laboratory. The animal room is operated at 70-80 degrees winter and summer with controlled humidity. A slight negative pressure is maintained by an exhaust fan which changes the air every few minutes. The room has a tile floor and walls so it may be washed thoroughly. All new animal cages have been purchased for rats, mice guinea pigs and rabbits. Dogs and cats are kept in a second supplementary animal room.—Thirty-one students and faculty members visited the Eli Lilly plant on November 4-5. On their return trip their bus was stalled for 8½ hours near Springfield, Missouri by a snow storm.—Mrs. Lois G. Walter, pharmacy librarian, has been elected to represnt departmental librarians in the Library Administrative Council.—Dr.

John B. Bruce has been appointed a member of a committee to plan a series of seminars on teaching for the entire faculty of the university.

Oregon State College.—Mrs. Harriet Sisson has been promoted in rank to assistant professor of pharmacy.—Miss Mary McDaniel has been appointed instructor in pharmacy to succeed Mrs. Janet Halligan who retired to enter the retail field. Miss McDaniel has the B.S. in Pharm. degree from the University of Washington and the M.S. with a major in botany from the University of Denver. She has also pursued graduate studies at the University of Colorado.—Dr. Don E. Francke, president of the A.Ph.A. was the student branch speaker at the November meeting.—Dean George E. Crossen, as chairman of the 1951 campus community chest drive announced that his group over subscribed their quota of $5,850.—The biennial Northwestern Regional meeting of Lambda Kappa Sigma was held in Corvalis on October 27, 1951. Mrs. Margit Harrison, grand president of the sorority was in charge of the meeting. Representatives were present from Oregon State College, Washington State College, University of Washington and the University of California. Several graduate chapters were also in attendance.—Dean George E. Crossen was the recipient, on October 18, of the University of Minnesota's Outstanding Achievement Award. This award is reserved for former students of the institution "Who have attained high eminence and distinction".—Prof. Frederick Grill presided over the school's display at the annual convention of the Oregon State Medical Society in Portland in October. The theme of the exhibit was "Synthetic Ion Exchanges". Pharmaceutical and medical applications of the synthetic resins in ion exchange were demonstrated.

Philadelphia College of Pharmacy and Science.—B. C. Goodhart of Merion, Pennsylvania, treasurer of the alumni association, has been named ad-interim treasurer of the college to fill the post left vacant through the death of the late Dr. Otto W. Osterland.—The following new instructors have been added to the staff: Theodore L. Lowe, in German; Conrad E. Kruse and Gow T. Lam, in bacteriology; and Dr. Harmar W. Schmitt in pharmacology. William Ball has returned to his position on the staff of the department of biology.—In recent weeks the college has suffered loss, by death, of Dr. Joseph J. Zimmerman, instructor in pharmacology and Mr. William E. Ridenour, for many years a college trustee and chairman of the library committee.—At a November convocation awards were announced as follows: two scholarships and one fellowship (Martin Katz) by the American Foundation for Pharmaceutical Education; one by the Borden Company Foundation; four by the Berger Ice Cream Company; and ten by miscellaneous donors. The American Chemical Society plaque, upon which will be engraved, each year, the name of the Society's commencement prize winner, was given the college by the Philadelphia Section of the A.C.S.—Dr. Ivor

Griffith gave citizenship awards to twelve students who had reached the age of 21 within the past month.—The model pharmacy has been completely refurnished with new asphalt tile flooring and fluorescent lighting.—A new course in Radio Active Substances has been planned and is being given by Dr. Arthur Osol.—Dr. Wilson McNeary, a trustee and recording secretary of the college, has given the school his entire and extensive collection of pharmaceutical ancientware, consisting of 184 pieces. The group of mortars and pestles, scales and weights, drug jars and bottles, was gathered from all corners of this country and other lands and is pricelessly unique. It has been housed permanently in three display cases which are constantly illuminated by spot lights.

University of Pittsburgh.—At the first faculty meeting of the year, Dean E. C. Reif presented gifts to three retiring staff members: Mrs. Betty Kicher, registrar; Miss Jean Hutchman, librarian; and Mrs. Dolores Armstrong, secretary to the dean. New members of the teaching and administrative staffs were the presented. Mrs. C. K. Williamson, B.S., M.S., has been named as instructor in the biological sciences. Mr. Richard M. Doughty, instructor in pharmacognosy, resigned to accept a teaching position at the University of Kentucky, college of pharmacy. Miss Grace E. Gibson, a graduate of Wheaton College, Illinois, is the new registrar and Miss Dorothy Nuttall, a graduate of the Carnegie Institute of Technology and Carnegie Library School, is the new librarian.—The senior class visited the Lilly plant in October.—The graduate pharmacy seminar, during the present semester, is being attended by the graduate students in the fields of pharmacy administration, pharmacognosy ,and pharmacy. The program includes certain phases of general education in pharmacy at the graduate level.—During National Pharmacy Week, Vice-Dean Wilson, as president of the Pittsburgh branch of the A.Ph.A., spoke on the radio on "Drugs of the Scriptures".

Purdue University.—Dean Glenn L. Jenkins participated in the inspection recently, for the American Council of Pharmaceutical Education, of the Universities of Toledo, Ohio Northern, Kentucky, and the Cincinnati College of Pharmacy.—Dr. John B. Data has been elected by the faculty to membership on the Executive Council of the general faculty of Purdue University and Dr. L. D. Edwards has been selected as the pharmacy representative on the graduate council.—323 students are enrolled in the sophomore, junior and senior classes and approximately 120 additional students are enrolled in the pre-pharmacy option in the school of science.

Rutgers University.—The members of the faculty and the graduate and collegiate chapters of Kappa Psi welcomed Dean and Mrs. R. A. Bowers at a series of functions upon the assumption of the deanship on

August 1.—Upon her resignation as registrar, Miss Margaret Babbage was given a testimonial dinner an presented with a number of appropriate gifts by the staff in recognition of her service to the college.—Dr. Richard A. Deno, director of educational relations of the American Council on Pharmaceutical Education has resumed his duties as professor of biology at the school. He will again resume his duties with the A.C.P.E. in January 1952. Dr. Deno spent a month's vacation in France last summer.—New staff appointments are: Mr. Jacob Block, instructor in chemistry; Miss Doris E. McKersie, laboratory assistant in pharmacy; anad William Driscoll, laboratory assistant in chemistry.—Walter Wuggatzer and Henry Eisen, who have completed work for the master's degree here, are now pursuing work for the doctorate at Purdue and the University of Connecticut, respectively.—R. George Kedersha and Prof. George M. Krause received the master's degree last June.—Rutgers University has announced the resignation of President Robert C. Clothier and the appointment of his successor, Dr. Lewis W. Jones, former president of the University of Arkansas.—The registration at present totals 371 students.—As a result of many requests for help from hospitals, Mr. Louis Kazin, of the Pharmacy Extension Service, was brought about the formation of a joint committee composed of members from the New Jersey Society of Hospital Pharmacists and the Pharmacy Extension Service which will be responsible for creating a coordinated policy between the two organizations.

Medical College of the State of South Carolina.—Mr. Arthur J. Guida has been appointed associate professor of pharmacy to replace Mr. Don E. Tillery, resigned. Mr. Guida is a graduate of St. John's University College of Pharmacy and last year was in residence at the University of Kansas, working toward the master's degree.—Dr. Hampton Hock attended the Plant Science Seminar at Niagara Falls in August.—The school has purchased an Eastman 16 mm. sound movie projector for use by all departments.—Construction has begun on the new wing of the Medical College building which, when completed, will house the pharmacy school on the fourth floor.

University of Southern California.—Members of the pharmacy faculty attended the district meeting of the A.Ph.A. held in Los Angeles in November. Prof. Edward S. Brady acted as chairman of the registration committee and also officially represented the American College of Pharmacists of which group he is president. Dean Alva G. Hall was a member of the panel on recent state and federal legislation pertaining to pharmacy.—Dean Hall was a speaker on the program given by the alumni of the College of Osteopathic Physicians and Surgeons in December in honor of President W. B. Henley.—Prof. Orville H. Miller was the speaker at the American College of Pharmacists meeting on December 6. His subject was "Medical Application of

Ion Exchanges".—The Prof. Edward S. Brady family has recently moved into a new home at 532 Athens Boulevard, in southwest Los Angeles.

Temple University.—Four scholarship grants have been made to undergraduate students by the Breyer Ice Cream Co., and two by the alumni association of the school.—Dr. James C. Munch was the official school delegate to the second Pan-American Conference of Pharmacy held in Lima, Peru in December. Dr. Munch is on leave of absence from the school and has joined the Strong Cobb Company of Cleveland, Ohio as medical director. Dr. Munch was elected general chairman of the Plant Science Seminar at its recent meeting at Niagara Falls.—Dr. Frank H. Eby was elected local chairman of the Seminar meeting to be held in Philadelphia in 1952.—Dean J. B. Sprowls addressed the annual meeting of the Schuylkill County Pharmaceutical Association on the topic "From Theriae to Tono-Bungay".—Prof. John A. Lynch has been appointed chairman of the First Aid Week and Pharmacy Week committees for the current year by the Pennsylvania Pharmaceutical Association.—Ninety-eight seniors visited the plants of E. R. Squibb & Company at both Brooklyn and New Brunswick in October.—The McKesson & Robbins Company, in cooperation with the Smith, Kline and French Wholesale Company, recently sponsored a one-day seminar on commercial pharmacy for members of the senior class.

University of Tennessee.—Sixty students were graduated on December 17. The commencement address was by Dr. Ben K. Harned, chief of experimental pharmacology at Lederle Laboratories, Peach River, New York. His subject was "Moulding the Future".—The fall quarter opened in September with 66 new students, 10 of whom were women and 12 came under the GI classification.—The model drug store has been completely restocked with ethical proprietaries.—A new course is being offered on "Sickroom Supplies" by Howard Hassler, instructor in pharmacy.

University of Texas.—Thirty seniors will be graduated at the end of the first semester.—Eight new members of Rho Chi were initiated on December 19.—The annual meeting on December 6-8 of the Texas Academy of Science, the Texas Branch of the American Bacteriological Society and the regional meeting of the American Chemical Society were timed to coincide with the formal dedication of the new $4,272,000 Experimental Science Building. Many scientists gathered from all parts of the country for the occasion. President D. W. Bronk of Johns Hopkins University and the National Academy of Science delivered the dedicatory address.—Prof. C. C. Albers has been elected chairman of the Board of the University Christian Association (YM and YWCA). He also participated in the program held in San Marcos in October at a confernece of Lutheran faculty members from various colleges and uni-

versities in the state.—One Borden, two American Foundation for Pharmaceutical Education, and four Southwestern Drug Company scholarships have been awarded for the current year.—Prof. W. R. Lloyd spoke recently to a group of high school students on the general subject of pharmacy as a career.—Dean Henry M. Burlage has been elected president of the local chapter of Phi Beta Kappa for the current academic year.—The student branches of the American Pharmaceutical Association and of the Texas Pharmaceutical Association are being merged into one organization in order to strengthen and eliminate duplication of efforts of organized pharmacy on the campus.—The pharmacy student body is participating in the "Blood for Korea" campaign now in progress on the University campus.

University of Utah.—For National Pharmacy Week, the student branch presented a popular series of paintings depicting the history of pharmacy through the ages. The exhibit was in the center window of the Utah Light and Power Building. The Phi Delta Chi group presented a display in a large department store window commemorating the centennial of the founding of the A.Ph.A. and pointing out the progress of pharmacy during the last century.—Phi Gamma, a local professional sorority for pharmacy women, is planning on affiliating with a national professional sorority.—Charles Funk, a senior pharmacy student, holds the office of vice-president of the Associated Men Students and Paul Armstrong, also a senior pharmacist, is president of the university's Lambda Chi Alpha.—The pharmacy students prepared an interesting float for the homecoming parade which carried a pharmaceutical theme. One beautiful girl was shown in an enormous capsule and another in a pill box. An oversized prescription carried the Sig: "Take one as need ed".—In November, Dr. E. A. Swinyard spoke before the P.T.A of the Roslyn Heights School in Salt Lake. He discussed the pharmaceutical services in civilian defense. Also during the month, he spoke before the students of the college of medicine on the relationship between the two professions and ways and means by which it ran can be improved.—In November, the **Salt Lake Telegram** commended Dean L. D. Hiner for the outstanding achievement of building the college of pharmacy from a beginning to a class "A" rating in minimum time, and also the student branch for compiling first-aid kits as a contribution to the Civil Defense Committee.—Twenty men were initiated into the local chapter of Phi Delta Chi.—The wives of the married students have organized themselves as a Ladies' Auxiliary.

University of Washington.—Drs. Edward Krupski and Nathan Hall spent several days recently on the Oregon State College campus discussing problems of wine research with the staff of the department of food technology. The University of Washington has a well-established program in that field.—The Campus Community Chest is directed this

year, as it was last, by Dr. Louis Fischer.—Miss Joy Bickmore was granted the master's degree and E. Roy Hammarlund the doctor's degree at the close of the summer session, both having done their major work in pharmacy.—The Admissions Committee, under the chairmanship of Dr. Fischer, admitted 80 students to the freshman class. This was less than 70% of those who applied.—Dr. L. Wait Rising attended a week-long conference of cosmetic manufacturers just prior to the meetings of the A.Ph.A. at Buffalo.

Wayne University.—Harvey A. K. Whitney and Dean Roland T. Lahey have been appointed to a new board of health committee which is to prepare a formulary for the three city hospitals of Detroit.

University of Wisconsin.—The second Wisconsin Pharmacists' Institute was held in November, with a capacity enrollment of one hundred. Special features were the distribution of a 90-page printed proceedings and a half-day of guided laboratory experience in compounding newer dermatological formulations, which had been discussed in lectures. The event is sponsored jointly by the University's school of pharmacy and the extension division, in cooperation with the Wisconsin Pharmaceutical Association. William S. Apple, the school's coordinator of pharmacy extension service, administered the program.—The Edward Kremers Memorial Lecture was given before a campus-wide audience in the Memorial Union Theater by Dr. K. K. Chen of Eli Lilly and Co., one of the school's distinguished alumni.—J. Howard Westing, professor of commerce, has been assigned to the school to head its developing program in pharmacy administration.—Prof. George Urdang has been confined to his home over a month, while recovering from a fractured shoulder. His paper for the Second Pan-American Congress of Pharmacy, on "The Pharmaceutico-Historical Movement," was presented for him, in Spanish.—Recent grants for research include $6000 from the National Heart Institute for analytical and synthetic studies on sabadilla; $3600 from Parke-Davis and Co. for pharmaceutical research under the direction of Profs. Higuchi and Busse; $1320 from Eli Lilly and Co. for special studies on synthetic medicinals by Prof. William O. Foye; and $500 from the C. P. Hall Co. of Illinois for development of analytic methods by Prof. Takeru Higuchi.—Eino Nelson has come to the school from the St. Louis College of Pharmacy to handle the laboratories in dispensing and continue work on the doctorate.—The school, through its department of historical pharmacy, cosponsored a campus lecture by Dr. Philip George of Cambridge University on "The Scientific Movement and Development of Chemistry in England from 1650 to 1750."—Prof. Dale E. Wurster gave the banquet address at the Providence 5 convention of Kappa Psi at St. Louis.—Three new Foundation fellowships were received this year by graduate students. About fifty students are studying for advanced degrees.

University of Wyoming.—An American Foundation for Pharmaceutical Education scholarship has been awarded to Sherry Martin, a junior student.—Phi Delta Chi recently initiated six students.—Jay Smith and Kenneth Christoffersen are the senior pharmacy students recently elected for inclusion in the 1951-52 edition of Who's Who Among Students in American Universities and Colleges—Dr. Theodore O. King represented the college of pharmacy at the fall meeting of the Rocky Mountain Section of the Society for Experimental Biology and Medicine in Denver in November. He also attended the Rocky Mountain Conference of the Institute for International Education in Denver in December.—A respiration pump assembly equipped with a variable stroke pump, an assembly for the perfusion of the mammalian heart, has been added to the equipment of the pharmacology laboratory.

The Board of Grants of the American Foundation for Pharmaceutical Education meeting in New York City on January 2, 1952, renewed six current Fellowships. The Board also selected five new Fellows. They are: William S. Apple—majoring in business administration at the University of Wisconsin; William B. Harrell—majoring in pharmaceutical chemistry at the University of Texas; Herbert Lieberman—majoring in pharmaceutical chemistry at Purdue University; R. E. Parkinson—majoring in business administration at Ohio State University; and Joseph A. Witt—majoring in pharmacognosy at the University of Washington.

In addition, at the present time, the Foundation is supporting 90 other graduate Fellows in 26 universities and providing financial aid for the training of more than 120 top ranking junior and senior undergraduate students in 39 colleges of pharmacy The Foundation's solicitation for 1952 operating funds is now under way With the hoped-for increase in the number of patrons and the amounts contributed, the Foundation will continue these Fellowships and Scholarships programs and its other activities in the area of pharmaceutical education.

Miscellaneous Items of Interest

Memorials

JOSEPH S. GOLDWAG
1886 - 1951

July 11, 1951 marked a sad moment in the annals of pharmaceutical circles when Dr. Joseph S. Goldwag passed away. He was professor of Inorganic Chemistry at the Brooklyn College of Pharmacy, L. I. U. for twenty-five years, when he died.

He was born in Austria, October 27, 1886 and came to the United States at the early age of one. He was one of three sons of Esther and Elias Goldwag.

He was graduated from the Brooklyn College of Pharmacy in 1906 and received the degree of Phar. D. in 1907. He was the recipient of a gold medal for general proficiency in each one of his classes.

Shortly after his graduation from B. C. P. he was appointed assistant instructor. He served as faculty advisor of the students council and was one of the organizers of the Brooklyn College of Pharmacy Basketball Team as well as the Eastern Collegiate Pharmacy Basketball League of which he was president at his death. The annual trophy of the league was named "The Joseph S. Goldwag Trophy." He was faculty advisor of the student branch of the American Pharmaceutical Association.

From 1925 to 1946, he served as Lecturer of General and Biological Chemistry at the L. I. U. School of Podiatry.

He was active in Masonic endeavors and was elected Master of his Lodge in 1918.

On April 29, 1951 at a dinner marking the Sixtieth Anniversary of the Brooklyn College of Pharmacy, he received a citation for outstanding service to the College, by the Alumni Association of the Brooklyn College of Pharmacy.

He leaves his wife, Jennie, a son Elias and two brothers, Dr. Harry L. and Abraham Goldwag.

HUGH LESLIE DAVIS

1895 - 1951

The College of Pharmacy of the University of Illinois, together with the whole pharmaceutical profession, notes with regret the loss to pharmacy on August 17, 1951, of Professor Hugh Leslie Davis, long a distinguished member of the department of chemistry at the University of Illinois, College of Pharmacy.

Born in Tarkio, Missouri, July 16, 1895, Professor Davis received his education at Tarkio College (B.S. 1918), Purdue (M.S. 1921) and the University of Iowa (Ph.D. 1925). In 1925 he joined the faculty of the University of Illinois where he taught both graduate and undergraduate chemistry until shortly before his death.

During the first World War, Professor Davis saw service for about one year in France as a member of the Chemical Warfare Service, and during the second World War, he was a member of the Manhattan Project at the University of Chicago, where he engaged in fundamental research with radio-active isotopes.

The result of his research was a long series of articles and talks, many of them since 1945 concerned with the uses of radio-active isotopes in biolchemistry. Completed at his death were researches into the use of radio-active iron and radio-active phosphorus in metabolism studies and a study (with Professors F. T. Maher and P. D. Carpenter) of the distribution of zinc in stramonium plants, using radio-active zinc. In progress was another study (with the same collaborators), into the function of zinc in the nutrition of the stramonium plant. Earlier interests had produced a series of articles on local anaesthetics and on compounds which might have anti-malarial activity, a number of them appearing in the Journal of the American Chemical Society.

Professor Davis was a member of the American Chemical Society, The American Pharmaceutical Association, Sigma Xi, Alpha Chi Sigma, Gamma Alpha, Rho Chi, Kappa Psi, and Phi Lambda Upsilon. The University he served by working actively on a number of important committees, among them the Executive Committee of the College of Pharmacy, the Committee on Radio-Active Isotopes, the Committee on Graduate Study, the Committee on the Electron Microscope, the Committee on Curriculum, the Committee on Awards, and the Committee on Committees. The College of Pharmacy owes much to his labors as class advisor and advisor to the student branch of the American Pharmaceutical Association. Outside his university connection, he was an active leader of his local Boy Scouts and one of the trustees of the Washington Boulevard Methodist Church of Oak Park, Illinois.

His many friends remember him with respect and affection not only for his learning which was great, for his industry, which was un-

tiring, for his service to the profession, which was constant, but also for his unfailing common sense, his dry wit, his quiet humanity, his deep interest in his fellow beings and his grave courtesy. His life gave fresh meaning and luster to an old description of the first-class man of his calling: He was a scholar and a gentleman.

The true quality of Professor Davis can best be seen in a quotation (a prayer, quoted below) discovered among his papers after his death.

A PRAYER*

Let me do my work each day; and if the darkened hours of despair overcome me, may I not forget the strength that comforted me in the desolation of other times. May I still remember the bright hours that found me walking over the silent hills of my childhood, or dreaming on the margin of the quiet river, when a light glowed within me, and I promised my early God to have courage amid the tempests of the changing year. Spare me from bitterness and from the sharp passions of unguarded moments. May I not forget that poverty and riches are not of the spirit. Though the world know me not, may my thoughts and actions be such as shall keep me friendly with myself. Lift my eyes from the earth, and let me not forget the uses of the stars, forbid that I should judge others lest I condemn myself. Let me not follow the clamor of the world, but walk calmly in my path. Give me a few friends who will love me for what I am; and keep ever burning before my vagrant steps the kindly light of hope. And though age and infirmity overtake me and I come not within sight of the castle of my dreams, teach me still to be thankful for life, and for time's olden memories that are good and sweet; and may the evening's twilight find me gentle still.

*Max Ehrmann (?)

The Twenty-Eighth Annual Plant Science Seminar

EDWARD P. CLAUS, SECRETARY-TREASURER

University of Pittsburgh
School of Pharmacy

The 28th Annual Plant Science Seminar was held at Niagara Falls, New York, in the Temperance Hotel, from Wednesday through Saturday, August 22-25, 1951. This brief meeting was crammed with highly informative scientific papers and reports, intensely interesting guest speakers, wide-awake business sessions, an educational tour through a modern optical equipment factory, several botanizing trips and the usual social events—the whole spiced with the good conversation and warm fellowship for which the Seminar is noted. Fifty-six persons attended the meetings and twenty colleges of pharmacy were represented.

Three sessions were devoted to papers and reports. At the first meeting on Thursday morning, August 23, Dr. A. B. Lemon, Dean of the University of Buffalo School of Pharmacy and Local Chairman, welcomed the Seminarians to the Niagara Falls region. The 1951 chairman's address "A Course of Action for the Plant Science Seminar" was presented by Dr. Heber W. Youngken, Jr. of the University of Washington. The scientific papers were concernd with such subjects as: Tobacco Mosaic Virus, Alkaloid Biosynthesis in Ergot, Leaf Drug Characteristics, Phytochemistry of Lithospermum, and an invited paper on "The Correlation of Pharmacognosy and Pharmacology". The latter paper had been read previously by Dr. Egil Ramstad of Purdue University at the Pharmacology Seminar held in June at that University, and it aroused considerable comment. At the final session, Dr Frank H. Eby of Temple University read the report of the Committee on Histological Terminology which stressed the need for agreement on histological terms used in the official compendia. The Committee on Audio-Visual Aids (Dr. Egil Ramstad, Chairman), not wishing to duplicate the work of a similar A.A.C.P. committee, restricted its activity to collecting information on educational films pertaining to Pharmacognosy course material. A comprehensive mimeographed appendix to the report was distributed to each person in attendance.

On Thursday evening, at the attractive Buffalo Lunch Club on Grand Island where the Seminarians had gathered for dinner, the guest speaker was Dr. Alexander Schwarcman, Research Chemist of Spencer Kellogg and Sons, Inc. He presented a complete survey of the "Fixed Oil Industry" comparing past developments, present uses and markets, and future economic possibilities for these vital substances. The

large open-air balcony of the Queenston Heights Park Restaurant, Queenston Heights, Ontario, which overlooks the Niagara Plains and the lower Niagara River, was the setting for the annual banquet on Saturday evening. The guest speaker was Dr. Reginald Pegrum, Professor of Geology and Geography at the University of Buffalo, who held his audience spellbound while he took them with him in imagination along "The St. Lawrence Waterway". He graphically portrayed the strategic location and economic importance of this inland waterway to Canada and the United States.

One of the highlights of the program was a trip to Bausch and Lomb Optical Company, Rochester, New York. As guests of this concern, the Seminar members were treated to a highly interesting and informative tour through the various departments where they watched the birth of a microscope from the sand and gravel that made the lens to the precision manipulation necessary for the final assemblage of its intricate parts. They were also guests at luncheon at the Bausch and Lomb Plant.

Mr. Bert Miller, a native botanist from Fort Erie, Ontario, led the group on a botanizing trip into the rocky Niagara Glen, and the Superintendent of the Gardener's School of the Niagara Parks Commission of Canada (the only school of its kind in North America), conducted a tour of inspection of the school's beautiful arbors and gardens. The Seminarians also visited the Burrough's Wild Life Sanctuary, a few miles east of Rochester, New York.

The traditional watermelon party was held in a pavilion under enormous old trees in Queen Victoria Park, Ontario on Friday, evening. Dr. Heber W. Youngken, Sr. was the master of ceremonies and presided over the carving of the fifteen watermelons. At dusk the Seminarians enjoyed the display of colored lights on the Falls.

At the final business meeting it was voted that the 1952 Plant Science Seminar be held in Philadelphia, Pennsylvania during the week preceding the A.Ph.A. convention with Dr. Frank H. Eby as Local Chairman. Among the resolutions presented were: those suggesting that more time be devoted to the consideration of teaching methods; inviting workers in the various biological sciences to participate in Seminar meetings; alloting more time in future programs for the presentation and discussion of scientific papers; and offering the services and full cooperation of the Plant Science Seminar to the Executive Committee of the A.A.C.P. in arranging for a Seminar of teachers of Pharmacognosy in 1952 or 1953.

The officers elected to serve during 1951-1952 are:

Chairman: James C. Munch, Strong, Cobb and Co., Inc., Cleveland, Ohio

First Vice-Chairman: Carl H. Johnson, University of Florida, College of Pharmacy

Second Vice-Chairman: J. Russell Anderson, Parke Davis and Co., Detroit, Michigan

Secretary-Treasurer: Edward P. Claus, University of Pittsburgh, School of Pharmacy

Members of the Executive Committee: Elmer L. Hammond, University of Mississippi, School of Pharmacy; Heber W. Youngken, Jr., University of Washington, School of Pharmacy; Chairman Munch; Secretary-Treasurer Claus

Twenty colleges of pharmacy were represented:

Duquesne University, Pittsburgh, Pa.
Massachusetts College of Pharmacy, Boston, Mass.
Medical College of South Carolina, Charleston, S. C.
Montana State University, Missoula, Montana
New England College of Pharmacy, Boston, Mass.
Purdue University, W. Lafayette, Indiana
Rhode Island College of Pharmacy, Providence, R. I.
St. Louis College of Pharmacy, St. Louis, Missouri
Temple University, Philadelphia, Pa.
Texas Southern University, Houston, Texas
University of Buffalo, Buffalo, New York
University of California, San Francisco, Calif.
University of Florida, Gainesville, Florida
University of Kansas, Lawrence, Kansas
University of Kansas City, Kansas City, Missouri
University of Pittsburgh, Pittsburgh, Pa.
University of Southern California, Los Angeles, Calif.
University of Washington, Seattle, Washington
University of Wisconsin, Madison, Wisconsin
Wayne University, Detroit, Michigan

NEW IN THE FAMILY

Janet Katherine DeGangi.—Born August 12, 1951, daughter of Dr. and Mrs. Frank E. DiGangi, University of Minnesota.

James Drew Gloor.—Born October 15, 1951, son of Mr. and Mrs. Walter T. Gloor, Jr., University of Nebraska.

Carlos Americo Moreno.—Born December 1, 1951, fourth son of Prof. and Mrs. Jose Moreno, University of Texas.

Ruth Ann Albers.—Born December 14, 1951, at Houston, Texas, daughter of Mr. and Mrs. Clarence Albers, second grandchild of Prof. and Mrs. C. C. Albers, University of Texas.

Richard Charles Youngken.—Born January 4, 1952, son of Dr. and Mrs. Heber W. Youngken, Jr., University of Washington.

The Seventy-fifth Anniversary of the College of Pharmacy of the University of Michigan

Usually an anniversary celebration is devoted to accomplishments of the past but this wasn't the case when the College of Pharmacy at the University of Michigan marked its 75th anniversary.

Except for one report on past accomplishments and achievements, the entire program was devoted to what's ahead for pharmacy in the next twenty-five years. Registration for the two-day affair, held on October 24 and 25, 1951 at Ann Arbor, passed the 500 mark, far exceeding the most optimistic of the anniversary committee's estimates.

Representatives of the 1882 and 1883 classes were among the alumni present. O. M. Rockwell came down from Owosso, Michigan, some sixty-five miles from the campus, to represent the 1882 class. O. S. Ledman, who hadn't been on the campus since graduation in 1883, came from St. Louis, Missouri. Ledman returned a "souvenir" to Dean Tom D. Rowe, a 250-centimeter laboratory flask taken from the college laboratories sixty-eight years ago.

All of the participants in a symposium and convocation, the highlights of the program, were alumni of the University and all but two were College of Pharmacy graduates. Honorary degrees were conferred at the convocation on Julia Esther Emmanuel, retired Fort Wayne, Indiana, pharmacist; Charles Rudolph Walgreen, Jr., of Chicago, president of the Walgreen Drug Co., and Charles Herbert Rogers, dean of the College of Pharmacy at the University of Minnesota.

Miss Emmanuel, who received a Pharmaceutical Chemist degree in 1889 and Mr. Walgreen, who received a similar degree in 1928, were given Master of Science degrees. Dean Rogers, who received a Bachelor of Science degree in 1913, was given a Doctor of Science degree.

Changes are ahead in pharmacy in the next twenty-five years. This was evident in the opening portion of a symposium. Richard A. Deno, professor of biological sciences at the Rutgers University College of Pharmacy and director of educational relations of the American Council on Pharmaceutical Education, predicted a longer period of training for pharmacists, probably six years.

Research will assume an even more important role, according to Justin L. Powers, chairman of the Committee on National Formulary and editor of the Journal of the American Pharmaceutical Association, Scientific Edition, Washington, D. C.

Boards of pharmacy will undergo changes in keeping with the increased professional training, according to Donald E. Francke, chief pharmacist at University of Michigan Hospital Pharmacy, president of the American Pharmaceutical Association and a member of the Michigan Board of Pharmacy.

The future outlook for retail pharmacy and drug manufacturers was the topic for the next section of the symposium. Victor Middleton, Grand Rapids drug store owner, reported his feeling that the progress of the retail pharmacy has not ended and that "the future does offer a more profitable and varied approach than at any time in the past."

Intensified demand for more and better pharmaceutical products and increased social obligations for the producers and dispensers of drugs was the prediction made by John G. Searle, president of G. D. Searle & Co.

A digest of The Pharmaceutical Survey was given by Mr. Walgreen.

The college's new dean, Tom D. Rowe, also took a look ahead and came up with four objectives for his administration which got under way last July 1. His ideas are.

1. Revising the curriculum to provide a broadening of the educational pattern to permit more non-science electives.

2. More complete utilization of the resources available in other units of the University.

2. Expansion of graduate work and research.

4. Expansion of services to the practicing pharmacists throughout Michigan.

Along with Dean Rowe's objectives, given at the concluding banquet on Thursday evening, came a word of warning from the University's new president, Dr. Harlan Hatcher, who pointed to a major problem facing education. He fears our scientists are being exposed to too much scientific knowledge without acquiring "a sense of what it means to be a human being on the surface of the world."

The only look backward during the program was taken by Dean Rogers who recalled the founding of the College of Pharmacy in 1876 and paid particular attention to the first dean, Albert B. Prescott. Dean Prescott's views that instruction in the basic sciences and laboratory work are necessary in the training of pharmacists was regarded as a bit radical at the time but since have been accepted everywhere.

Dean Prescott continued as dean until 1905. Since then the College of Pharmacy has been headed by Julius Schlotterbeck, 1905-1917; Alviso B. Stevens, 1917-1919; Henry Kraemer, 1919-1920; Edward H. Kraus, 1920-1933; Howard B. Lewis, 1933-1947; and Charles H. Stocking, 1947-1951.

The only non-graduate of the College of Pharmacy who still ranks as an alumnus of the University of Michigan to take part in the program was Dr. Leonard A. Scheele, surgeon general of the United States Public Health Service.

He predicted "great gains in public health in the years ahead" although he said specific gains at a given point in time could not be prophesied.

Any broad and lasting improvement in public health in the United States will come from community action, he declared. He predicted rising levels of health among the world's suffering millions as one after another of the preventage infectious diseases is conquered.

THOMAS D. ROWE

The American Foundation for Pharmaceutical Education

Minutes of the Meeting of the Executive Committee, September 26, 1951, Hotel Biltmore, New York City. (An Abstract)

President Beardsley reviewed the activities of the Foundation for the last six months and expressed confidence for future progress. He announced he would address the N.A.R.D. Convention on October 15 on the work of the Foundation.

Mr. Doerr advocated direct solicitation of N.A.R.D. members, through, and with the cooperation of Secretary Dargavel. All concurred in the advisability of this effort and President Beardsley agreed to explore the matter with Secretary Dargavel

Secretary and Executive Director W. Paul Briggs presented his report covering the period 4/1/51/ to 9/26/51/ to the Executive Committee. The report outlined the activities of the Secretary during his period and gave information and suggestions concerning the routine activities of his office.

The report of the Finance Committee was then received. This report to the Executive Committee of the A.F.P.E. was the result of a meeting of the Finance Committee at the Universiy Club, New York City, on September 25, 1951. The report contained a number of recommendations relative to the handling of the Foundation funds, vacations for members of the office force, the publication and distribution of the Roster of Foundation Fellows and Scholars, and other routine matters such as appear in the management of Foundation affairs. Of special interest to our readers, the Committee recommended that a contribution of $3000 and a yearly pledge of $3000, for the next two years (which had been offered the Foundation for the two or more extra Fellowships in the field of Pharmacy Administration) be accepted in order to stimulate interest for study in this area. The Fellows are to be selected in the usual way by the Board of Grants.

To carry out the spirit and intent of the resolution approved at the Board of Directors meeting, May 17, 1951, in establishing the Edwin Leigh Newcomb Memorial Fund, the Finance Committee recommended: That annually the income from $33,000 of securities held by the Foundation and earning the highest rate of interest, be credited as the interest earned on the special Edwin Leigh Newcomb Memorial Fund; Approximately this amount (as an even and suitable sum) to be used to encourage study and research in pharmaceutical botany and pharmacognosy by awarding, when justified, three $250 cash prizes for the best essays for published papers on pharmacognosy, one in each of the following classes: undergraduate students, in accredited colleges of pharmacy; graduate students in accredited colleges of pharmacy; teachers, research workers and industrial scientists. The awards to be made by a committee composed of: the chairman of the U.S.P. Subcommittee on Botany and Pharmacognosy, the chairman of the National Formulary Subcommittee on Pharmacognosy, and one expert appointed by the Executive Director. The awards to be identified as the Dr. E. L. Newcomb Memorial Awards.

The Committee also recommended that the Executive Committee approve and place on the agenda for the next annual meeting a proposal to increase the number of Foundation directors from 25 to 30.

The Committee further proposed that consideration be given to the discontinuance of the Undergraduate Scholarship program beginning with the academic year 1952-53, and the establishment in place thereof, of a Student Loan Fund available to accredited colleges of pharmacy in amounts not exceeding $400 per year for worthy, promising and needy pharmacy students. The plan was discussed at length and the Finance Committee and Secretary were requested to give further attention to the matter and to include the proposal in the agenda for the next Executive Committee Meeting.

After the discussion on the recommendations made by the Finance Committee, the Executive Committee commended it for its concise and comprehensive report, approving all its recommendations unanimously. After fixing the tentative date and place of meeting of the annual meeting of the American Foundation of Pharmaceutical Education on April 21, 1952 in New York City, adjournment followed.

RUFUS A. LYMAN, *Abstractor.*

What the people of two typical American communities are doing themselves to improve their local health standards and to correct poor health situations where needed is told in the October issue of **"Progress in Health Services,"** just published by Health Information Foundation.

In Talladega, Ala., with a population of 13,000, and in Lenawee County, Mich., of 64,000, local citizens' committees are taking an inventory of their health conditions.

They are searching for information on every possible aspect related to the health of their communities. They are asking themselves questions ranging from sewage disposal to health insurance. In a sense, they are taking their own community pulse.

These studies are the first of a series to be conducted along similar lines throughout the country. Health Information Foundation, which initiated the series as a whole, is cooperating by making grants to research groups for studies of these projects.

The Talladega and Lenawee programs are being guided by research teams with the University of Alabama and Michigan State College which have received HIF grants.

The studies will be interpreted in printed manuals as a guide to other community groups interested in conducting similar self-surveys.

"The philosophy behind this research," the Foundation said, "is that cultural changes occur with least conflict and confusion along lines of established community patterns. We believe that a community itself has the ability to solve many of its health problems and that if its citizens have available to them an objective picture of the community's health situation, a knowledge of other communities' experiences in solving similar problems and competent democratic leadership, they will develop the needed action programs."

Abstract of the Proceedings of the Pharmacy Group of the 1951 Meeting of the Medical Library Association

The fiftieth annual meeting of the Medical Library Association was held in Denver, Colorado, June 28-July 2. The program of the Pharmacy Librarians Group dinner was held on the evening of June 28. Miss Margaret Vinton, librarian at the St. Louis College of Pharmacy, was chairman of the Pharmacy Group and presided at the program. Twenty-three persons, which number represented 12% of the members of the Medical Library Association registered for the convention, attended the Pharmacy Librarians meeting.

Dr. Rufus A. Lyman, Editor of the American Journal of Pharmaceutical Education, who was invited to be the guest speaker at the dinner, found it impossible to attend but sent a letter in which he expressed pleasure that the theme of the meeting was to be a discussion of the criteria for pharmacy school libraries and librarians. He offered the pages of the Journal for publication of any material resulting from the program that would be of value in furthering the objectives for which they are striving.

Discussion of the subject of criteria or standards, more concrete, qualitative and professional than those now available, brought out the complexity of organization and administration, with much uneveness of quality in the three types of pharmacy school libraries mentioned later in this article.

The pharmacy librarian group, unlike that of any other group within the Medical Library Association, includes a number of librarians of pharmaceutical firms. They have been interested and helpful in the matter of standards for pharmacy school libraries. Although not directly affected, they appreciate the need for qualified personnel in school libraries, to insure familiarity with and full usage of the printed publications reporting studies, experimental data, and research upon therapeutic agents and pharmaceutical products.

In line with current work of the committees on medical, hospital and nursing schools libraries (who have published criteria and standards in tentative form), the Pharmacy Librarians voted to request the Executive Board to appoint a committee of six members, representing the three types of pharmacy school libraries, to study criteria and standards for pharmacy school libraries and librarians.

In order to give a complete picture of the activities of the Pharmacy Group, we print below the action and recommendations made to

the Board of Directors of the Medical Library Association. The group voted:

1. To endorse the resolution submitted to the Executive Board June 22, 1950, by Miss Clara Robeson, 1950 chairman, requesting the appointment of a committee to study Criteria and Standards for Pharmacy School Libraries. (The group urges consideration of this resolution by the Executive Board at the 1951 meeting, since no action has been taken).
2. To endorse the suggestion of Miss Robeson and Mrs. Cowles relative to this committee, made to the Executive Board June 11, 1951:
   a. That the three main groups of Pharmacy School Libraries have equal representation. These groups are, (1) Libraries of independent Schools, (2) Libraries of Universities that maintain separate libraries for their Pharmacy Schools, (3) Combined libraries serving more than one school of the University.
   b. That the Committee be made up of six members, three of whom would concern themselves with standards (according to M.L.A. definition standards for librarianship) and the other three, criteria (defined by M.L.A. as standards for libraries).
   c. That from each group of three, one member be designated as chairman and that these co-chairmen correlate and co-ordinate the work of the committee with M.L.A. policies.
3. To request the 1952 program chairman to schedule meetings of the medical school, dental school, and pharmacy groups at different hours to permit the attendance of librarians concerned with two or more of those subjects.
4. To request the program chairman to appoint a librarian of a pharmaceutical house as Pharmacy Group chairman for 1952, and to alternate the chairmanship between school and house librarians in succeeding years.
5. To urge the Executive Board to accept Dr. R. A. Lyman's generous offer to publish material pertaining to pharmaceutical librarianship in the American Journal of Pharmaceutical Education, i.e., the appointment of a committee on criteria for pharmacy school libraries, report of the group meeting, or any other matter the Executive Board would deem proper.

In a letter dated August 10, 1951, Miss Clara Robeson and Mrs. Barbara Cowles, of the Massachusetts College of Pharmacy, co-chairmen of the Committee on Standards and Criteria for Pharmacy School Libraries of the Medical Library Association, announced that a committee of six to study the criteria and standards for pharmacy libraries and librarians was in the process of being appointed. They state, "In the main, the committee will be concerned with studying, coordinating and interpreting criteria for libraries and standards for li-

braries and standards for librarianship as applied to pharmacy libraries and librarians. This is a program which will tax the abilities of all concerned." It certainly will.

The co-chairmen have asked the Editor for any assistance he can render and he has assured the co-chairmen that they will also find sympathetic assistance where ever they turn for it among faculties and the administratitve staffs of our schools and colleges.

The retiring president of the Medical Library Association has written Miss Margaret Vinton as follows:

"In behalf of the Medical Library Association, I would like to convey to you, as chairman of the Pharmacy Group meeting, the appreciation of the association. It always takes a great deal of time and energy to prepare for such a meeting and we are very grateful to you for making it such a success."

We wish to add our commendation to the Pharmacy Group for a job well started and give the group support in every possible way.—Ed.

The Southern Conference Educational Fund, Inc., of New Orleans, a non-profit, non-political agency, has completed a poll of southern college and university professors, the purpose of which was to acertain the opinion of teachers on the question of the elimination of segregated graduate and professional education for negroes in the south, in order to provide equal educational opportunities for negroes in these fields. Ballots were sent to 15,000 teachers in southern and border states. With the exception of West Virginia University, no state university was included in the list of 130 institutions for white students concerned by the poll, because state universities had been covered in a previous poll. West Virginia was included because it was not in the previous poll and because it is one of the seven states where separate schools are maintained by law, but where the racial bar has been lowered in the graduate schools of the state university. The returns from the poll reveal that seven out of every ten teachers that replied favor immediate admission of negroes to graduate and professional schools of the south without segregation. The Educational Fund is now conducting a research project in attitudes toward racial practices in hospitals and health services.

E. A. Brecht, Dean

North Dakota

North Dakota Agricultural School of Pharmacy, Fargo. (1922)
W. F. Sudro, Dean

Ohio

Ohio Northern University, College of Pharmacy, Ada. (1925)
Albert C. Smith, Dean

University of Cincinnati, Cincinnati College of Pharmacy. (1947)
J. F. Kowalewski, Dean

Ohio State University, College of Pharmacy, Columbus. (1900)
B. V. Christensen, Dean

University of Toledo, College of Pharmacy, Toledo. (1941)
Charles H. Larwood, Dean

Oklahoma

Southwestern State College, School of Pharmacy, Weatherford. (1951)
W. D. Strother, Dean

University of Oklahoma, College of Pharmacy, Norman. (1905)
Ralph W. Clark, Dean

Oregon

Oregon State College, School of Pharmacy, Corvallis. (1915)
George E. Crossen, Dean

Pennsylvania

Duquesne University, School of Pharmacy, Pittsburgh. (1937)
Hugh C. Muldoon, Dean

Philadelphia College of Pharmacy and Science, Philadelphia. (1900)
Ivor Griffith, Dean

Temple University, School of Pharmacy, Philadelphia. (1928)
Joseph B. Sprowls, Dean

University of Pittsburgh, School of Pharmacy, Pittsburgh. (1900)
Edward C. Reif, Dean

Philippines

University of the Philippines, College of Pharmacy, Quezon City. (1917)
Patrocinio Valenzuela, Dean

Puerto Rico

University of Puerto Rico, College of Pharmacy, Rio Piedras. (1926)
Luis Torres-Diaz, Dean

Rhode Island

Rhode Island College of Pharmacy and Allied Sciences, Providence. (1936)
W. Henry Rivard, Dean

South Carolina

School of Pharmacy, Medical College of South Carolina, Charleston. (1940)
William A. Prout, Dean

University of South Carolina, School of Pharmacy, Columbia. (1928)
E. T. Motley, Dean

South Dakota

South Dakota State College, Division of Pharmacy, Brookings. (1908)
Floyd J. LeBlanc, Dean

Tennessee

University of Tennessee, School of Pharmacy, Memphis. (1914)
Robert L. Crowe, Dean

Texas

University of Texas, College of Pharmacy, Austin .(1926)
Henry M. Burlage, Dean

Utah

University of Utah, College of Pharmacy, Salt Lake City. (1951)
L. David Hiner, Dean

Virginia

Medical College of Virginia, School of Pharmacy, Richmond. (1908)
R. Blackwell Smith, Dean

Washington

State College of Washington, School of Pharmacy, Pullman. (1913)
P. H. Dirstine, Dean

University of Washington, College of Pharmacy, Seattle. (1903)
Forest L. Goodrich, Dean

West Virginia

West Virginia University, College of Pharmacy, Morgantown. (1920)
J. Lester Hayman, Dean

Wisconsin

University of Wisconsin, School of Pharmacy, Madison. (1900)
Arthur H. Uhl, Dean

Wyoming

University of Wyoming, College of Pharmacy, Laramie. (1951)
David W. O'Day, Dean

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